

# COMPUTERWORLD

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## SPECIAL REPORT

## Hard Times for IT Workers

Laid-off technical staffers in search of jobs face bleak future

### An unprecedented number of IT professionals

have been thrown out of work over the past two years by a wave of mergers, a tough recession and the dot-com crash. Unable to find work, they are becoming increasingly frustrated and bitter. Many see H-1B visa holders and younger, cheaper labor as the primary obstacles to landing a job. One thing is clear: Job seekers will need to buff up their skills to reach beyond traditional IT boundaries if they want to see the inside of a cubicle again.

SPECIAL REPORT BEGINS ON PAGE 6.

### WHO ARE THE IT UNEMPLOYED?

**Employees squeezed out by mergers and acquisitions:** 80% of layoffs in 2001 were due to some form of corporate restructuring, up from 74% in 2000.

**Dot-com refugees:** In the first three months of 2002, Internet companies announced 4,021 job cuts, adding to the 100,925 cuts announced in 2001.

**Skilled veterans:** IT workers who have a wealth of deep experience in a particular job or industry but whose skill sets are relatively narrow or confined to older technologies, such as Cobol.

**Displaced consultants:** These workers were among the first to be let go with the cuts to 2002 IT budgets. A year ago, Dice.com, an online IT job posting service, listed 100,000 jobs. Today, the board has 31,000 listings.

### THE TYPICAL H-1B

- Male
- Indian
- Systems analyst or programmer
- Makes around \$53,000 annually
- Has a master's degree or higher
- Is seeking a permanent position in the U.S.

SOURCE: IMMIGRATION AND NATURALIZATION SERVICE. BASED ON APPLICANTS APPROVED TO BEGIN EMPLOYMENT IN THE PERIOD FROM OCT. 1, 1999, TO FEB. 29, 2000.

Note: See employment numbers roundup chart on page 7 for more information.

## ORACLE DEAL MAY FELL CALIF. IT AGENCY

Oversight unit under fire over \$126M pact

BY MARC L. SONGINI

A central IT agency that was set up seven years ago to oversee

the California state government's technology spending is on the verge of being dismantled, due partly to its involvement in approving a \$126 million licensing deal for Oracle Corp. databases last May.

The California Department of Information Technology, which needs to be reauthorized by the state legislature before the end of June, already faced a rocky road because of earlier controversies. But a highly critical report about the Oracle deal that was released this month by the state auditor may have pushed the IT agency over the edge.

Citing the report, which Oracle, page 10

## EMBATTLED CHIEFS TAKE THE STAND

Gates threatens to pull Windows from market

BY PATRICK THIBODEAU  
WASHINGTON

Microsoft Corp. Chairman Bill Gates was poised and engaging as he delivered a stunning message from the witness stand last week: Adopt the wrong remedies, and he will have to withdraw Windows from the marketplace.

Moreover, said Gates, the Gates, page 60

Fiorina denies hiding info from shareholders

BY BRIAN SULLIVAN  
WILMINGTON, DEL.

A verdict in the HP/Compaq merger trial is expected early this week after three days of contentious testimony in a courtroom here.

At the heart of the case is whether Hewlett-Packard Co.'s upper management shielded poor financial forecasts from Fiorina, page 60

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### ONLINE EXTRA

To read the California state auditor's report about the Oracle licensing agreement, head to the Web: [www.computerworld.com/q/a1930](http://www.computerworld.com/q/a1930)

### LEGAL TROUBLES



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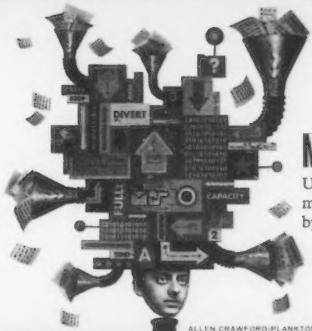
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ALLEN CRAWFORD/PLANKTON ART

## MINDING THE MESSAGE STORE

Users are clamoring for technologies that monitor and manage the flood of data created by messaging applications. **PAGE 46**



TAN CHUONG/BETTY IMAGES

## APPREHENSION ABROAD

Since the Sept. 11 attacks, IT professionals such as Computer Sciences' Douglas Brown (left) have been grappling with the personal security concerns associated with being an American on foreign soil. **PAGE 36**

APRIL 29, 2002

# COMPUTERWORLD THIS WEEK

## NEWS

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**10 Attendees at CA World** find that amid the financial and legal challenges confronting Computer Associates, the company is working hard to win user support.

**12 Pepsi and Coke** refresh their distribution and vending operations with wireless systems built around Windows-based handhelds.

**12 A voice/data converged IP** network that's being constructed to support this year's World Cup event in Japan and South Korea will be the largest such network ever built, analysts say.

**14 New high-end servers** from Unisys and IBM aim to make users' lives easier by using partitions.

**16 Financial services firms** satisfy regulators with help from e-mail and instant message archiving.

## Quick Link

For breaking news, updated twice daily, visit our Web site: [www.computerworld.com/q?q4000](http://www.computerworld.com/q?q4000)

## BUSINESS

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**29 Regis McKenna**, a best-selling author, says the practice of marketing is changing, and it's becoming a new strategic ground for IT.

**30 Being outsourced** to EDS has brought a lot of benefits to former Weyerhaeuser regional infrastructure manager Blake Self.

**34 Supply chain management** systems are paying for themselves by helping companies such as Lockheed Martin Aeronautics and American Eagle Outfitters reduce their labor costs and speed their inventory turns.

**39 Diversity:** i.c.stars is a program in Chicago aimed at helping inner-city youths develop IT and leadership skills, writes Kathleen Melymuka.

**40 Career Adviser:** Fran Quittell counsels a seven-year networking professional who wants to know what certifications he should be keeping up with.

## TECHNOLOGY

41

**41 Columnist Nick Petreley** writes that Linux may really be on its way to the desktop this time.

**42 Provisioning technologies** automate the process of providing user access to resources — and blocking that access when necessary. Deployment can be difficult, though, users caution.

**44 Hands On:** A *Computerworld* editor finds that a Windows XP installation can lead to serious interoperability headaches and require unexpected upgrades.

**50 QuickStudy:** The Windows registry is a database that stores configuration information for the operating system and applications. Learn more in this tutorial.

**52 Security Journal:** Security manager Mathias Thurman learns that users are spending several hours per day at porn sites, but he chooses to filter traffic rather than reveal the perpetrators.

## OPINIONS

24

**24 Patricia Keefe** says that with unemployment in the IT industry at its highest point ever, employers should embrace the concept of workforce planning.

**24 Pimm Fox** urges IT to get behind congressional legislation that could stave off a federal IT brain drain and possibly help boost the government's technology-related initiatives.

**25 David Moschella** writes that some of IT's future might lie in the past — that is, in four words from the ancient Greeks. Among them: *metadata and taxonomy*.

**62 Frank Hayes** says Bill Gates didn't do anything to help lift his credibility last week when he testified in the latest phase of Microsoft's antitrust case.

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# ONLINE

## LAYOFF WOES

After reading about the tough IT job market (page 6), share your thoughts and experiences in our online discussion forum. [www.computerworld.com/q?q1070](http://www.computerworld.com/q?q1070)

## GATES' TESTIMONY

Online community members chimed in after Bill Gates testified last week in Microsoft's antitrust case. Gates said he would withdraw Windows from the market if the court forced him to produce a stripped-down version of the operating system. Read the members' reactions. [www.computerworld.com/q?q1920](http://www.computerworld.com/q?q1920)

## SECURING ELECTRONIC PAYMENTS

With cybercrime on the rise, there are several steps that online merchants can take to assess the security of their current systems, writes CyberSource's Jeff King. [www.computerworld.com/q?commerce](http://www.computerworld.com/q?commerce)

## COMING MAY 6!

Computerworld launches its redesigned Web site next week. You'll see streamlined navigation, new features and better integration with our print edition. For more details, visit [www.computerworld.com/q?29268](http://www.computerworld.com/q?29268)



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# Hard Times

Tech workers trying to find jobs face a bleak future

BY JULIA KING

**I**N INTERVIEWS, more than 50 CIOs, high-tech hiring managers, recruiters, consultants and out-of-work IT professionals in different regions of the country told the same story: Two years of heavy corporate merger activity followed by the dot-com bust and a general downturn in the economy have brutalized the IT job market, victimizing even veteran, highly skilled IT professionals.

The result is the largest pool ever of unemployed computer specialists, who are alternately bewildered, angry and, increasingly, bitter. A harsh economy has forced many into lengthy unemployment, fueling two urban myths: Jobs are being lost to less-expensive younger or foreign workers. The mere mention of the federal H-1B program, designed to enable foreigners to supplement the U.S. workforce, often triggers extreme emotions.



**"FIND SOMEONE IN THE IT DEPARTMENT WHO CAN SPONSOR YOU, [MAYBE] HAND-DELIVERING A RÉSUMÉ TO A DECISION-MAKER WITH POSITIVE WORDS."**

TOM MURPHY, CIO, ROYAL CARIBBEAN CRUISE LINES, MIAMI

It's true that most H-1B visas are used to hire computer workers, primarily as systems analysts and programmers at vendor companies. And younger workers are clearly a budgetary bargain.

But efforts to gather the statistics needed to capture a full picture of the state of IT unemployment revealed that in many cases, the experts don't agree, and in others, they don't even track the issue anymore.

## Sobering Changes

What's certain is that IT employment is changing on all fronts, with the advantage sliding over to employers. Experts don't expect employment to climb back up to where it was in the heady dot-com years. The days of big perks and high salaries are gone. Job hopping is risky. Employees must be versatile and flexible.

Unquestionably, the brunt of the economy has come down full force on the employee side of the coin. The reasons for that are many.

More than 200,000, or up to 2%, of the country's estimated 10.4 million IT workers are now jobless, according to Harris Miller, president of the Arlington, Va.-based Information Technology Association of America. The industry group, which has lobbied for H-1B increases, also maintains that there is a major shortage of skilled technology workers.

But that just doesn't fly with the swelling ranks of unemployed IT pros, which include plenty of people like Mark Scoville, a 44-year-old software engineer with a computer science degree and 18 years of experience, as well as current Unix,

Java and other skills. Since being laid off in November after three years at Campus Pipeline Inc. in Salt Lake City, Scoville has sent out hundreds of résumés and landed five interviews, with no success.

"I consider the situation rather bleak," said Scoville, who was told by one interviewer that he's one of more than 2,000 qualified but unemployed IT workers in his area. "This is the most difficult period of my entire career. A year and a half ago, I could have gone anywhere and named a price. This is definitely not the case now."

"I don't think my age has been a factor," Scoville added. Instead, it's his experience level and his corresponding higher salary. "There are people who are very well equipped coming out of schools. They're fresh, with quick minds, and they're very inexpensive entry-level people as opposed to someone like me who has been in the industry for 18 years and de-

mands a higher salary," he said.

A second sizable group on the unemployment line are IT workers who have a wealth of experience in a particular job or industry but whose skill sets are relatively narrow. Once a project is over or as their companies evolve their computing infrastructures to include newer technologies, they risk losing their jobs.

For example, companies have severely cut back on large SAP projects. Rather than signing on for multiyear, enterprise-wide implementations, the trend now is for companies to embark on SAP projects a small piece at a time. Companies with mainframe needs want workers whose skills extend significantly beyond the mainframe.

Dot-com job cuts also continue to add significantly to the unemployment numbers. Many

of those workers laid off in previous years have yet to find jobs. Rounding out the jobless ranks are tens of thousands of consultants and contractors who have lowered their rates after being cut from projects.

And come next month, all of these unemployed groups will be competing for jobs with a flood of new computer science graduates.

## Age Issues

Since younger workers are cheaper to hire, experts say the potential for age discrimination is greater than ever. Indeed, the Equal Employment Opportunity Commission reported in February that age discrimination is its fastest-growing type of complaint.

"It's true that when companies are trying to cut costs, they tend to lay off higher-paid workers, who also tend to be older workers," said Lisa

Trade Center towers fell.

The following are some of the arguments on each side:

- Companies have created an indentured servant class out of H-1B visa holders, according to Norman Matloff, a professor at the University of California, Davis.

- Companies don't hire average IT workers, but rather engineers with advanced degrees, said Paula Collins, director of government relations for

## U.S. Labor Dept. Rules for H-1B Visa Holders

- A company must compare the prevailing wage for a position to the actual wage it pays other workers in similar positions. It must then pay the H-1B holder the higher of the two.

- A company must post notice of its intent to hire H-1B visa holders and inform other employees and anyone who negotiates salaries for them. If there is no one who negotiates for all employees, then the company must post two notices in places visible to all workers for at least 10 days.

- Companies that violate these rules are subject to fines.

## STAT

**337,703**

The number of IT job cuts in the U.S. between July 2000 and March 2002.

SOURCE: THE FINANCIAL TIMES TECHNOLOGY JOB WATCH

# NEWSIT UNEMPLOYMENT

Guerin, an employment attorney and legal editor at Nolo.com, a Berkeley, Calif.-based legal publisher. "And when they bring workers back, they tend to bring in younger workers. The incentive [to discriminate based on age] is there."

Still, some IT managers acknowledge a preference for younger, less-experienced workers who they can pay less and train in-house.

## Looking Ahead

Even as the economy begins to bounce back, new IT jobs won't be added in significant numbers. This is because companies have adapted to operating with tighter resources and fewer employees and are reluctant to grow labor and the other costs they worked so hard to slash.

"Any hiring we're doing is primarily replacement hiring for people who have left the firm," said Mike Lowe, vice president of staffing at Newark, N.J.-based Prudential Financial,

which employs 5,200 IT workers. "We'll keep growth under control."

Where does this leave the unemployed? In addition to a broad array of skills and experience, management skills can help you get your foot in the door, even for highly technical positions. Having cut out middle managers, companies need staffers who can self-manage, said Ed Jensen, a partner in Accenture Ltd.'s human performance practice in Atlanta.

In the meantime, many unemployed workers like Mark Scoville will continue to collect unemployment. What he's hearing on the street is "almost always the same story: When the economy comes back, there will be jobs. They just started saying this at the beginning of April," Scoville said. But he believes that people "are generally more hopeful than the reality holds." □

*Reporter Brian Sullivan contributed to this story.*

human resources and education at Texas Instruments Inc.

■ Companies would rather hire U.S. residents because it costs \$1,000 in fees to hire an H-1B holder, said Margaret Wong, an immigration lawyer in Cleveland.

According to the last INS report regarding which companies hire the most H-1B workers, covering October 1999 to February 2000, Motorola Inc. (618), Oracle Corp. (455) and Cisco Systems Inc. (398) topped the list (see chart at right). Others in the top 25 included Intel Corp., Microsoft Corp. and Sun Microsystems Inc. Most of those companies wouldn't comment.

Cisco said that the INS numbers are out of date, noting that it has backed off its H-1B program and has actually done little hiring of any kind recently. Layoffs caused by the downturn have increased the number of qualified U.S. workers in the marketplace, Cisco said.

"Basically, we have been a user of the program almost exclusively to hire electrical engineers, all of whom or most of

whom have master's degrees or Ph.D.s," said a Texas Instruments spokesman. Statistics do show that more foreign nationals receive advanced degrees in engineering, computer engineering and computer science.

In the 2000-01 academic year, foreign nationals took 60.4% of computer engineering master's degrees. They earned 68.9% of computer science and 51.8% of combined computer science and engineering master's, according to Richard Heckel, technical director at Houghton, Mich.-based Engineering Trends Inc. His firm tracks graduate information from U.S. engineering colleges. As for Ph.D.s, foreigners took 66.1% in computer engineering degrees, 54% in computer science and 54.3% in combined computer science/engineering.

But that matters only if you believe the companies; Matloff, a vigorous critic of H-1B visas, says he doesn't. His research shows that only 1% of H-1B holders have Ph.D.s and only 7.5% have master's degrees, though other research says otherwise (see chart). □

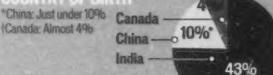
## The IT Job Market by the Numbers

*In an effort to present the most accurate picture possible of the state of IT unemployment today, Computerworld staffers talked to researchers, recruiters, employment specialists, academics, government officials, H-1B experts (both pro and con), unemployed*

workers and employers. We perused statistics back to 1990 and found ourselves virtually stymied in our attempts to find government data beyond 2000. We believe the data presented here provides the best statistical view currently available.

### THE AVERAGE H-1B HOLDER

#### COUNTRY OF BIRTH



#### MAJOR OCCUPATION

- Computer-related occupations in general account for 53.5% of total H-1B petitions.
- 60% of the petitions that don't apply to the cap involve computer-related.
- Systems analysts and programmers account for 47.4% of approved petitions, more than half of which do not apply to the cap. (This comprised nearly 89% of the people within the computer-related fields.)

#### ANNUAL WAGE

- The median annual wage reported by employers for all H-1B workers is \$50,000. Half of these workers are expected to earn between \$40,000 and \$65,000. ■ Workers in computer-related fields had the fourth-largest median income, \$53,000, with workers expected to earn \$45,000 to \$64,000. ■ The median for cap workers was \$50,000; it was \$62,000 for noncap workers.

#### HIGHEST DEGREE EARNED

- Bachelor's degree or equivalent: 31%
- Master's degree: 31%
- Doctorate: 8.1%
- Master's degree or higher: 31% or more

SOURCE: U.S. IMMIGRATION AND NATURALIZATION SERVICE, BASED ON APPLICANTS APPROVED TO BEGIN EMPLOYMENT FOR THE PERIOD FROM OCT. 1, 1999 TO FEB. 29, 2000.

**Top five H-1B employers, October 1999 to February 2000, in terms of approved petitions:**

1. Motorola Inc. 618
2. Oracle Corp. 455
3. Cisco Systems Inc. 398
4. Mastech Corp. 389
5. Intel Corp. 367

Note: Among the top 25 H-1B employers, which account for slightly more than 17% of the total petitions approved during the first five months of 2000, are the following high-tech companies and consultancies: PricewaterhouseCoopers, Lucent Technologies Inc., Nortel Networks Inc., Sun Microsystems Inc., Compuware Corp. and KPMG LLP. IBM ranks 35th; AT&T, 55th.

SOURCE: U.S. IMMIGRATION AND NATURALIZATION SERVICE

### HIGH-TECH EMPLOYMENT

**10.4M** Total number of IT workers in the U.S.

**9.5M** Total number of IT workers at non-IT companies

**100,000 to 200,000** Estimated number of IT workers currently unemployed in the U.S. (up to 2% of the overall IT workforce of 10.4 million)

SOURCE: ITAA, AN ASSOCIATION OF HIGH-TECH VENDORS AND A PROponent OF THE H-1B PROGRAM

#### TOP TECH AREAS

1. Silicon Valley
2. New York
3. Los Angeles
4. Philadelphia
5. Chicago

Note: Boston was once a top five staple.

SOURCE: DICE INC.

#### IT Unemployment Statistics of Note

**50%** How much longer it takes older workers to find a new job vs. workers under 30

**50%** Probability that mature workers will experience a pay cut in future endeavors

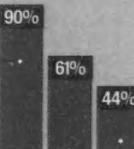
**80%** Portion of layoffs due to some form of corporate restructuring

**106:1** The odds of finding an entry-level position on one of the four largest Internet job boards\*

\*According to a March 2002 analysis by outplacement firm Challenger, Gray & Christmas Inc. in Chicago. The firm arrived at the statistic by surveying popular Internet job sites, where it tallied up a total of 11,291 job listings and divided them by this year's 1.2 million spring college graduates.

#### Outsiders Need Not Apply

Hiring managers prefer to find candidates within their own companies.



Job seekers in 2001 found positions through networking vs. the Internet.

Hiring managers fill up to 25% of openings before posting them.

SOURCE: NEW YORK OUTPLACEMENT FIRM DRAKE SEAK MORIN

# Hard Times

Tech workers trying to find jobs face a bleak future

BY JULIA KING

**I**N INTERVIEWS, more than 50 CIOs, high-tech hiring managers, recruiters, consultants and out-of-work IT professionals in different regions of the country told the same story: Two years of heavy corporate merger activity followed by the dot-com bust and a general downturn in the economy have brutalized the IT job market, victimizing even veteran, highly skilled IT professionals.

The result is the largest pool ever of unemployed computer specialists who are alternately bewildered, angry and, increasingly, bitter. A harsh economy has forced many into lengthy unemployment, fueling two urban myths: Jobs are being lost to less-expensive younger or foreign workers. The mere mention of the federal H-1B program, designed to enable foreigners to supplement the U.S. workforce, often triggers extreme emotions.



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"It's true that when companies are trying to cut costs, they tend to lay off higher-paid workers, who also tend to be older workers," said Lisa

## Emotions Run Hot on H-1Bs

Numbers difficult to track; impact of visas debated

BY BRIAN SULLIVAN

It would be easier to separate sheets of wet tissue paper pounded flat by a hammer than to separate fact from fiction in the H-1B debate.

Employers say foreign workers fill gaps left by a dearth of qualified U.S. residents.

Unemployed IT workers and their allies say there's no labor shortage. They claim that employers are just trying to cut IT costs and drive down wages by hiring foreign workers at lower pay rates.

The truth lies somewhere in between, but clarifying the issue is difficult because emotions run high and statistics are either contradictory or dated. For example, the Immigration and Naturalization Service (INS) stopped tracing H-1B data after the Sept. 11 attacks. Other oft-cited numbers were

issued in 1998 or early 2000.

Still, the available data does bear out that H-1B workers are often younger and better educated than their American peers and are seeking permanent resident status (see charts, pages 1 and 7). Most H-1B holders in the computer industry are hired to fill systems analyst and programming jobs. Some receive the prevailing wage, while others make less working in job shops. But the numbers are meaningless to many.

"The problem with the whole issue is that it gets into matters of immigration," said Robert D. Austin, assistant professor of IT management at Harvard Business School. "And that turns into us vs. them."

So it's not surprising that the debate often drifts into rhetorical battles, giving rise to such unsubstantiated extremes as the charge that all the H-1B workers in a New Jersey office cheered as across the Hudson River the World

Trade Center towers fell.

The following are some of the arguments on each side:

■ Companies have created an indentured servant class out of H-1B visa holders, according to Norman Matloff, a professor at the University of California, Davis.

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## U.S. Labor Dept. Rules for H-1B Visa Holders

■ A company must compare the prevailing wage for a position to the actual wage it pays other workers in similar positions. It must then pay the H-1B holder the higher of the two.

■ A company must post notice of its intent to hire H-1B visa holders and inform other employees and anyone who negotiates salaries for them. If there is no one who negotiates for all employees, then the company must post two notices in places visible to all workers for at least 10 days.

■ Companies that violate these rules are subject to fines.

# NEWS IT UNEMPLOYMENT

Guerin, an employment attorney and legal editor at Nolo.com, a Berkeley, Calif.-based legal publisher. "And when they bring workers back, they tend to bring in younger workers. The incentive [to discriminate based on age] is there."

Still, some IT managers acknowledge a preference for younger, less-experienced workers who they can pay less and train in-house.

## Looking Ahead

Even as the economy begins to bounce back, new IT jobs won't be added in significant numbers. This is because companies have adapted to operating with tighter resources and fewer employees and are reluctant to grow labor and the other costs they worked so hard to slash.

"Any hiring we're doing is primarily replacement hiring for people who have left the firm," said Mike Lowe, vice president of staffing at Newark, NJ-based Prudential Financial,

which employs 5,200 IT workers. "We'll keep growth under control."

Where does this leave the unemployed? In addition to a broad array of skills and experience, management skills can help you get your foot in the door, even for highly technical positions. Having cut out middle managers, companies need staffers who can self-manage, said Ed Jensen, a partner in Accenture Ltd.'s human performance practice in Atlanta.

In the meantime, many unemployed workers like Mark Scoville will continue to collect unemployment. What he's hearing on the street is "almost always the same story: When the economy comes back, there will be jobs. They just started saying this at the beginning of April," Scoville said. But he believes that people "are generally more hopeful than the reality holds." ▶

*Reporter Brian Sullivan contributed to this story.*

human resources and education at Texas Instruments Inc.

■ Companies would rather hire U.S. residents because it costs \$1,000 in fees to hire an H-1B holder, said Margaret Wong, an immigration lawyer in Cleveland.

According to the last INS report regarding which companies hire the most H-1B workers, covering October 1999 to February 2000, Motorola Inc. (618), Oracle Corp. (455) and Cisco Systems Inc. (398) topped the list (see chart at right). Others in the top 25 included Intel Corp., Microsoft Corp. and Sun Microsystems Inc. Most of those companies wouldn't comment.

Cisco said that the INS numbers are out of date, noting that it has backed off its H-1B program and has actually done little hiring of any kind recently. Layoffs caused by the downturn have increased the number of qualified U.S. workers in the marketplace, Cisco said.

"Basically, we have been a user of the program almost exclusively to hire electrical engineers, all of whom or most of

whom have master's degrees or Ph.D.s," said a Texas Instruments spokesman. Statistics do show that more foreign nationals receive advanced degrees in engineering, computer engineering and computer science.

In the 2000-01 academic year, foreign nationals took 60.4% of computer engineering master's degrees. They earned 68.9% of computer science and 51.8% of combined computer science and engineering master's, according to Richard Heckel, technical director at Houghton, Mich.-based Engineering Trends Inc. His firm tracks graduate information from U.S. engineering colleges. As for Ph.D.s, foreigners took 66.1% in computer engineering degrees, 54% in computer science and 54.3% in combined computer science/engineering.

But that matters only if you believe the companies. Matloff, a vigorous critic of H-1B visas, says he doesn't. His research shows that only 1% of H-1B holders have Ph.D.s and only 7.5% have master's degrees, though other research says otherwise (see chart). ▶

## The IT Job Market by the Numbers

In an effort to present the most accurate picture possible of the state of IT unemployment today, Computerworld staffers talked to researchers, recruiters, employment specialists, academics, government officials, H-1B experts (both pro and con), unemployed

workers and employers. We perused statistics back to 1990 and found ourselves virtually stymied in our attempts to find government data beyond 2000. We believe the data presented here provides the best statistical view currently available.

### THE AVERAGE H-1B HOLDER



- Computer-related occupations in general account for 53.5% of total H-1B petitions.
- 60% of the petitions that don't apply to the cap were computer-related.
- Systems analysts and programmers account for 47.4% of approved petitions, more than half of which do not apply to the cap. (This comprised nearly 89% of the people within the computer-related fields.)

■ The median annual wage reported by employers for all H-1B workers is \$50,000. Half of these workers are expected to earn between \$40,000 and \$65,000. ■ Workers in computer-related fields had the fourth-largest median income, \$53,000, with workers expected to earn \$45,000 to \$64,000. ■ The median for cap workers was \$50,000; it was \$62,000 for noncap workers.

- Bachelor's degree or equivalent: 31%
- Master's degree: 31%
- Doctorate: 8.1%
- Master's degree or higher: 31% or more

SOURCE: U.S. IMMIGRATION AND NATURALIZATION SERVICE, BASED ON THE 1990 CENSUS OF POPULATION AND HOUSING. BEGIN EMPLOYMENT AT THE PERIOD FROM OCT. 1, 1990, TO FEB. 29, 2000.

**Top five H-1B employers, October 1999 to February 2000, in terms of approved petitions:**

1. Motorola Inc. 618
2. Oracle Corp. 455
3. Cisco Systems Inc. 398
4. Mastech Corp. 389
5. Intel Corp. 367

Note: Among the top 25 H-1B employers, which account for slightly more than 75% of the total petitions approved during the first five months of 2000, are the following high-tech companies and consultancies: PricewaterhouseCoopers, Lucent Technologies Inc., Nortel Networks Inc., Sun Microsystems Inc., Compuware Corp. and KPMG LLP. IBM ranks 35th; AT&T, 55th.

SOURCE: U.S. IMMIGRATION AND NATURALIZATION SERVICE

### HIGH-TECH EMPLOYMENT

**10.4M** Total number of IT workers in the U.S.

**9.5M** Total number of IT workers at non-IT companies

**100,000 to 200,000** Estimated number of IT workers currently unemployed in the U.S. (up to 2% of the overall IT workforce of 10.4 million)

SOURCE: ITAA, AN ASSOCIATION OF HIGH-TECH VENDORS AND A PROponent OF THE H-1B PROGRAM

### TOP 5

1. Silicon Valley
2. New York
3. Los Angeles
4. Philadelphia
5. Chicago

Note: Boston was once a top live staple.

SOURCE: DICE INC.

### IT Unemployment Statistics of Note

50% How much longer it takes older workers to find a new job vs. workers under 30

50% Probability that mature workers will experience a pay cut in future endeavors

80% Portion of layoffs due to some form of corporate restructuring

106:1 The odds of finding an entry-level position on one of the four largest Internet job boards\*

\*According to a March 2002 analysis by outplacement firm Challenger, Gray & Christmas Inc. in Chicago. The firm arrived at the statistic by surveying popular Internet job sites, where it tallied up a total of 11,291 job listings and divided them by this year's 1.2 million college graduates.

### Outsiders Need Not Apply

Hiring managers prefer to find candidates within their own companies.



Job seekers in 2001 found positions through networking vs. the Internet.

Hiring managers till up to 25% of openings before posting them.

SOURCE: NEW YORK OUTPLACEMENT FIRM CHALLENGER, GRAY & CHRISTIE

## Landing an IT Job in Today's Tough Market

IT managers and recruiters offer concrete tips and action items

BY JULIA KING

"Diversify."

That's James McKnight's premier piece of advice to the IT unemployed.

Laid off from his year-old job as an IT contractor in late 2000 as a direct result of the AOL Time Warner Inc. merger, it took McKnight, 31, nine months to land his current position. He is now manager of systems integration and development at the Association for Supervision and Curriculum Development, an Alexandria, Va.-based designer and distributor of educational training materials. He got the job after answering an ad in *The Washington Post*.

During that period, McKnight, who has eight years of IT experience, said he sent out an average of eight résumés per day, five days a week, for a total of 1,440 résumés. He also expanded his skills well beyond his Microsoft Windows NT expertise by paying for his own training to learn Cisco and Unix technologies. He is now certified in both.

### What You Have to Offer

"You have to be able to contribute," said McKnight, who also advises job seekers to "look ahead and keep your eye on where technology is going, and get training there." For example, he noted that a certification in Linux will soon be available and that Cisco is branching out to offer additional certifications.

With IT unemployment at its highest level ever, job hunting has become an agonizingly slow process for thousands of out-of-work IT professionals. On average, it's taking three to six months for IT job seekers to land a new position, according to Chicago-based outplacement firm Challenger, Gray & Christmas Inc. To help

smooth the search, Computerworld canvassed CIOs, recruiters and successful IT job seekers for specific tips on how to land a job. They include the following:

- Get training in security technologies, and work to obtain a government security clearance.
- If you're an experienced Oracle database administrator, upgrade your skills to Oracle9i and IBI. That's where the hottest demand is, recruiters say. Other hot areas include network security, C++, SQL software and Java.
- Rewrite your résumé to describe your skills in business terms. "If you're looking for a job today the same way you looked 18 months ago, you need to change," said Katherine Spencer Lee, executive director at RHI Consulting Inc.,



**"LOOK AHEAD AND KEEP YOUR EYE ON WHERE TECHNOLOGY IS GOING, AND GET TRAINING THERE."**

RECENT HIRE JAMES MCKNIGHT

an IT placement firm in Menlo Park, Calif. "Typically, what we see on résumés is a little sentence that says 'I'm a [database administrator];' then there's a laundry list of technical skills. The people getting jobs now are not providing a laundry

list. Don't say you implemented Siebel CRM software, but [say] that you were on a project that ultimately will save the company millions of dollars a year."

■ Shine the spotlight on any and all of your management, customer contact and communications skills, which the Fortune 1,000 recently ranked as the top-two most desirable skills in new hires, according to a survey of 150 senior executives conducted from Dec. 3, 2001, to Jan. 22, 2002, by Accenture Ltd. Technology skills ranked third in the overall list of most desirable skills.

■ If you're a so-called one-trick pony who knows only mainframe programming, for example, get training in distributed computing platforms and learn the basics of networking. If you know Novell networking, learn NT. If you know the NT operating system, learn Unix and Linux.

■ If you're an out-of-work,

under-30 dot-commer who earned six figures and had a vice president title, you must lower your expectations and swallow your ego.

■ Consider working for the government, which is facing a crippling shortage of IT workers. Federal employees can retire at age 55, and 29% of all government IT workers are now over the age of 50, according to the CIO's office at the U.S. Department of the Treasury. The Washington-based National Academy of Public Administration estimates that the government will need to hire 45,000 IT workers over the next 10 years.

■ Keep up your Rolodex, and network, network, network. ▀

### Quick Link

Visit our Web site for a 10-point survival plan for the unemployed job hunter:  
[www.computerworld.com/q?29266](http://www.computerworld.com/q?29266)

To learn about opportunities presented by the federal government brain drain, go to:  
[www.computerworld.com/q?27918](http://www.computerworld.com/q?27918)

## The Picture of Frustration

Five months and hundreds of résumés yield a single interview

BY JULIA KING

Tom Sata, 57, was laid off from his \$77,000-a-year job as a systems analyst at Invesco Funds Group Inc. in Denver last October. Five other IT workers, four of them in their 40s or so, were let go at the same time. They followed in the footsteps of five IT employees who were laid off in September.

Yet less than a year before getting his pink slip, Sata, who was working in Oracle and PowerBuilder applications at the time, was asked to train a new, younger employee on the

software application that Sata was maintaining. The younger employee wasn't among either of the two groups laid off.

"I don't know if my age contributed. It's very subtle. It's nothing that you can say 'That's why they did it,'" said Sata. "But it occurred to me I was replaced by a younger person."

These days, Sata purposely omits many of his earlier mainframe and other skills from his résumé. He has been in IT for more than 25 years, consistently upgrading his skills as technologies have changed.

"I send out résumés that are sort of shortened," he said. "It's a specific move so I don't look as old as I really am. Some skills don't apply anymore anyway."

Since October, Sata has been



**"IT'S LIKE GOING INTO A BLACK HOLE. PEOPLE SEND RÉSUMÉS EVERYWHERE AND YOU NEVER HEAR BACK."**

TOM SATA, LAID-OFF SYSTEMS ANALYST

### Feeble Demand

**14%** of U.S. IT executives plan to expand their IT departments during Q2 2002  
**4%** plan to reduce their IT departments  
**81%** of CIOs plan no change in hiring activity during Q2, up from 78% in Q1 2002

SOURCE: RHI CONSULTING'S POLL OF MORE THAN 1,000 CIOs FROM A STRATIFIED RANDOM SAMPLE OF COMPANIES WITH 500 OR MORE EMPLOYEES

aggressively sending out résumés and using his time to train himself in Java and Visual Basic. In five months, he has landed one interview — and he didn't get the job.

"I look at Internet job sites, company Web sites, newspaper ads and headhunters," said Sata, who seems resigned to the likelihood that he won't be able to find a job as satisfying or well paying as his previous one. "I'm looking at everything, from business application developer to business analyst to QA tester, so I've broad-

ened the jobs I'm looking for.

"I've also submitted résumés and have gotten a call back from companies saying they've received 400 résumés," he said. But more often, he hears nothing back at all. "It's like going into a black hole," he said. "People send résumés everywhere and you never hear back."

But then again, that's to be expected in the current glutted job market, Sata said philosophically. "There's more supply than demand. There's just more IT people out there than there are jobs," he said.

Still, Sata will continue to look for a job in IT. But his wife has thrown in the towel. "She was in IT for 10 years," he said. "Now she's a full-time oil painter." ▀

### Quick Link

Consultants are the first to go in hard times, but they're the first to rise when a recovery begins:  
[www.computerworld.com/q?29288](http://www.computerworld.com/q?29288)

Contributors to this Special Report included writers Julia King, Brian Sullivan, Melissa Solomon and Richard Sala; editor Patricia Keefe; researcher Gussie Wilson; and graphic designer Julie D'Errico.

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## AT DEADLINE

### PeopleSoft Set to Add Vertical CRM Apps

At an invitation-only event that it's holding in Las Vegas this week, PeopleSoft Inc. plans to announce versions of its customer relationship management (CRM) software aimed at government users and companies in the energy, insurance and high-tech industries. Pleasanton, Calif.-based PeopleSoft said it will also detail new human resources and strategic sourcing applications.

## Microsoft Issues Patch for Outlook

Microsoft Corp. released a software patch designed to address a security hole that could affect Outlook 2000 and 2002 users who have set up Word as their e-mail editor. Attackers could exploit the hole to run scripts on unprotected PCs if users forward or respond to malicious e-mail messages. Microsoft gave the flaw a "moderate" severity rating but urged users to apply the patch.

## VeriSign Plans Cuts After Tough Q1

Mountain View, Calif.-based VeriSign Inc. reported lower-than-expected first-quarter results and said it plans to cut its workforce by 10%, affecting about 350 employees. The security and domain name services provider said it lost \$20.9 million on revenue of \$327.8 million in the first quarter. CEO Stratton Sculavos cited "significant spending delays" by corporate customers.

## Short Takes

MOTIENT CORP., a wireless data network operator in Reston, Va., said a U.S. Bankruptcy Court judge has approved a financial reorganization plan that's due to take effect Wednesday. . . . SUNGARD DATA SYSTEMS INC. in Wayne, Pa., offered to buy GUARDIAN IT PLC, a U.K.-based disaster recovery services firm, for \$240 million.

# CA Looks to Ease User Concerns

*Software vendor emphasizes customer focus, settles pricing suit brought by DOJ*

BY MARC L. SONGINI  
ORLANDO

COMPUTER Associates International Inc. last week ratcheted up a campaign aimed at improving its image with customers — an effort that has taken on increased importance because of the various financial and legal challenges the software vendor faces.

Islandia, N.Y.-based CA pushed a customer-centric focus at its CA World conference here last week, announcing initiatives such as a set of online customer service tools and a reorganization of its product development and support groups (see story below).

The company also moved to resolve one of the issues it's confronting. CA agreed to settle

a civil suit filed in September by the U.S. Department of Justice (DOJ) over alleged price-fixing improprieties related to the vendor's 1999 purchase of Platinum Technology International Inc. CA didn't admit wrongdoing but will pay the government \$638,000.

Sanjay Kumar, CA's president and CEO, said the DOJ's suit and several other hurdles the company has had to contend with since last summer have all been distractions. "Clearly, it's been a tough year," he said.

In such situations, Kumar said, keeping users from delaying purchases "is always precarious, because there's so much misinformation [being] spread." But Kumar said that he doesn't think the various events have prevented CA

from signing any deals.

Thus far, CA's delivery of products and technical support services hasn't been hampered, according to a half-dozen users and analysts at CA World. But some attendees said CA's challenges have given them at least a bit of a pause.

### Satisfaction Tempers Worry

"It raises the flag on the radar screen," said Alan Lindsey, network services manager at Bridgestone/Firestone Americas Holding Inc. in Nashville. Lindsey said he relies on CA's Unicenter 3.0 software to manage his firm's e-commerce network. While Lindsey has some concerns about CA's future, he said he hasn't "seen the need to press the issue. I'm still satisfied with my level of support."

"I read the papers, and I would be dishonest if I said it didn't get my attention," said Kim Joyce, executive director of the Virtual Education

cluding its Unicenter systems management tools.

CA also made product announcements in the areas of storage management as well as wireless and Web services technologies. For example, CA formally detailed its BrightStor Portal 1.0 software, which will give users a single Web-based interface for managing multipurpose storage installations. The portal technology is due to ship in the third quarter, the company said.

In addition, CA said it's adding two new Unicenter tools for use in managing wireless technologies. One is designed to manage wireless networks and provide intrusion-detection capabilities, while the other can be used to configure and monitor handheld PCs and other mobile devices. Both products are scheduled to be released this summer.

— Marc L. Songini

## Development Split Along Product Lines

ORLANDO  
The internal restructuring that CA announced at CA World sets up five development, marketing and technical support units for its core product lines.

Each unit will have its own developers and product support team, although the company plans to maintain a unified sales organization. CEO Sanjay Kumar said that more than 95% of CA's users will still deal with the same sales and support workers with whom they dealt before.

CA has six main product lines, but its CleverPath portal technology and AllFusion business intelligence software are being combined into a single business unit. Separate operations will be set up for the Unicenter, eTrust, BrightStor and Advantage lines.

As expected, CA also an-

nounced a new online service called CustomerConnect, which lets users review their software licenses and billing records via the Web. The self-service technology can also be used to download software updates and to open requests for technical support help.

Petrinovich, manager of the information services division at American Greetings Corp. in Cleveland, is an early user of CustomerConnect. Petrinovich said the service offers him a centralized view of all his products and CA contacts, information that was previously "locked away in an internal CA database."

Petrinovich added that he was also able to access his own contact information and make changes. American Greetings, which produces greeting cards, uses about 200 CA products, in-

## The Perils of CA

CA has faced a variety of issues since last summer, including the following:

An unsuccessful proxy fight that was launched by billionaire investor Sam Wyly in an attempt to oust some CA board members

A price-fixing suit that was filed in September by the DOJ over CA's acquisition of Platinum Technology

Inquiries into CA's accounting practices that the SEC and a U.S. attorney started in February

A credit rating downgrade by Moody's Corp. that prompted CA to cancel a planned \$1 billion bond offering in February

Space, an educational collaborative in Boston that's sponsored by the Massachusetts state government.

But Joyce said CA has kept up its support for the CleverPath Web portal and eTrust intrusion-detection software that the collaborative uses.

"There's no question that this could have broken another company," said Rick Ptak, an analyst at Ptak & Associates Inc. in Amherst, N.H. "In practical terms, I think there is an enormous amount of strain on the [top executives at CA]."

But on the bright side, Ptak added, these issues have forced CA to become more focused on customer satisfaction.

Some users said they worry about the future of CA's product line. For example, Adam Grajczyk, manager of IT services at the South Australian Tertiary Admissions Centre in Adelaide, said he's concerned about the "diminishing base" of CA's Ingres database users.

Grajczyk's agency relies on a customized Ingres database with 80GB of information to process student admissions for three universities, and he said it would be difficult to move the data to another database.

But Kumar said CA remains committed to Ingres. "It ain't going anywhere," he said. ▀

## Quick Links

For more about CA, visit the special coverage page on our Web site:  
[www.computerworld.com/q/a1640](http://www.computerworld.com/q/a1640)

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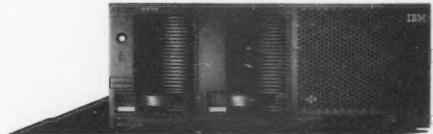
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# Coke, Pepsi Service Technicians Go Mobile

*Handhelds save time, eliminate paper*

BY BOB BREWIN

**C**OCA COLA GOES BETTER with mobile computers. Major Coke and Pepsi distributors have equipped service technicians with wireless, handheld computers to help speed the repair of fountain dispensers and vending machines, better track repair parts and eliminate mountains of paper.

Pepsi Bottling Group, in Somers, N.Y., just finished a yearlong deployment of 700 rugged handheld computers running on the Windows CE operating system to its technicians throughout the U.S. This has eliminated the 3 million pieces of paper per year Pepsi once generated to handle repair work orders, according to Ray Oliver, the company's director of operations.

Pepsi's new system is built around a rugged Sidearm Windows CE computer from Melard Technologies Inc. in Armonk, N.Y., and lets Pepsi maintain a "virtual inventory" of parts on each technician's truck. This database, which resides on a mainframe, is updated by data transmissions from the Sidearm devices and accessible to the company's eight call centers, Oliver said.

## Speedy Dispatch

A dispatcher can quickly determine whether a Pepsi technician with a Sidearm has the right part for a pending job, "and if he does not, we send another technician," he said.

Once that part is used, the service technician enters its number into the handheld computer, which then automatically updates the back-office systems that maintain the virtual inventory.

The Sidearm incorporates a wireless modem that transmits data over the Cingular Inter-

active packet data network operated by Cingular Wireless in Atlanta.

Service technicians at Coca-Cola Bottling Company Consolidated in Charlotte, N.C., had been using handhelds for about the past five years but had grown frustrated with the hard-to-read black-and-white screens, said David Myers, a project manager at Coca-Cola.

To resolve this problem, Coca-Cola has just completed a rollout of 240 rugged PDT 8100 computers from Symbol Technologies Inc. in Holtsville, N.Y., with glare-proof color screens. Coca-Cola ported an

old DOS program developed in-house to the PDT devices' Microsoft Pocket PC operating system and added hooks to take advantage of the built-in barcode scanner, which the older computer lacked.

Because part of the company's territory includes moun-

**PEPSI**  
uses Melard's  
Sidearm.



tainous areas in Tennessee, Virginia and West Virginia, Myers said, the firm has relied on a wireless satellite communications system from the Omnitrac division of San Diego-based Qualcomm Inc.

Jeff Kagan, an Atlanta-based analyst, said the two systems are indicative of a trend to drive wireless, handheld computing deep into the enterprise. "This is taking mobile management to a new level," he said, which "will provide companies with a competitive advantage."

Although they are seemingly simple devices, Oliver noted that vending and fountain machines are complex electro-mechanical systems with a large number of parts. Fast-food restaurants, such as Pizza Huts and Taco Bells owned by Louisville, Ky.-based Tricon Global Restaurants Inc., "that can't pour soda" would lose many customers, Oliver said. ▶

## World Cup Puts Converged Networking to the Test

*Big data and voice over IP network built for tourney*

BY MICHAEL MEEHAN

Soccer's World Cup tournament stands out as perhaps the ultimate contest of national pride, but this year's quadrennial event will also serve as a key proof-of-concept vehicle for converged voice and data networking technology.

With 120,000 data and voice over IP telephone connections in 22 locations throughout Japan and South Korea, the World Cup's network will be the largest converged installation to date, according to several industry analysts. And the stakes are immensely high, because media from around the world will be completely reliant on the network when covering the games, which start May 31 and end June 30.

Gerard Gouillou, CIO at the Zurich-based Federation Internationale de Football Association (FIFA), said this has been the most difficult IT project ever for soccer's governing body. But his team began running usage simulations on the network last week, and Gouillou likes what he's seen so far.

"The full deployment will not occur until 16 days prior to the event.... But based on our testing, we do not anticipate any issues," he said.

## Proving Ground

Zeus Kerravala, an analyst at The Yankee Group in Boston, said the World Cup provides a significant test case for IP telephony and voice/data convergence. "The world's watching them here," Kerravala said, although he added that FIFA should be able to pull off the networking job without many hitches if it's careful to get things right before going live.

"From our experience, any bad voice-over-IP installation has [happened] because the up-front work hasn't been done," Kerravala said.

FIFA enjoys one luxury that most other businesses don't: A vendor is footing the bill for its network. In fact, Avaya Inc., in Basking Ridge, N.J., paid more than \$100 million for the rights to build the networks for this year's World Cup, the 2006 tournament and the women's World Cup finals next year.

## AT A GLANCE

### Network Mundial

*The converged voice and data network being set up for the World Cup includes the following technology:*

- 800-plus IP telephones at each of 20 stadiums across Japan and Korea, and more than 800 at each of two international media and IT centers
- 2,000 miles of cabling
- 150 wide-area network connection ports
- 200 routers and 100 data networking switches
- A wireless LAN at each stadium that supports Internet access from mobile PCs.

## Cola Computers

### COCA-COLA BOTTLING COMPANY CONSOLIDATED

- Rugged Symbol PDT 8100
- Intel StrongARM processor/Pocket PC operating system
- Pen or keyboard input
- Satellite wireless service through Qualcomm's Omnitrac division

### PEPSI BOTTLING GROUP

- Melard Technologies Sidearm
- Intel StrongARM/Windows CE operating system
- Keyboard input
- Garmin Inc. GPS receiver in truck-mounted charger/cradle
- Packet data wireless service through Cingular Interactive

## Quick Link

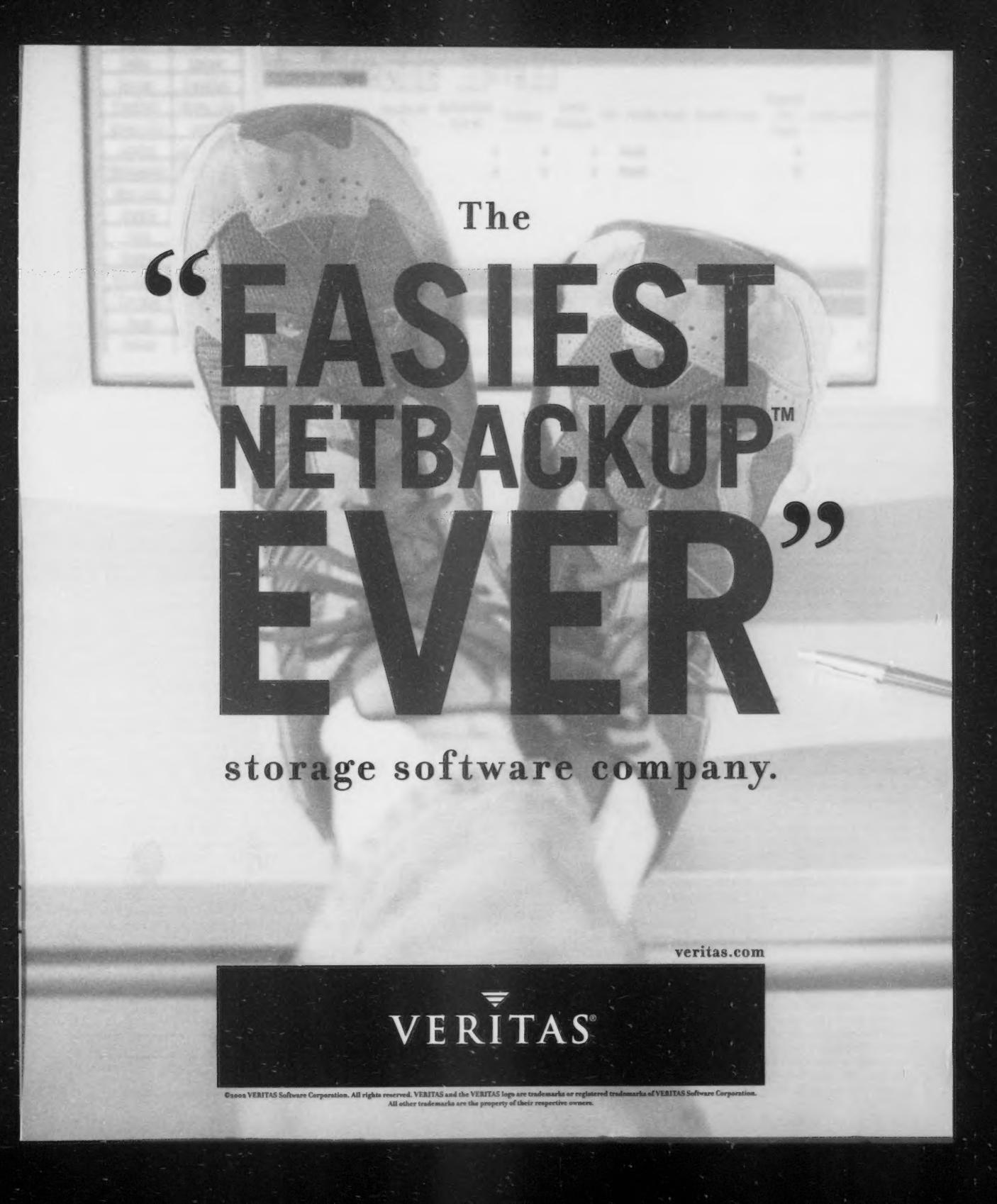
To learn about Pepsi's use of GPS technology, visit our Web site:  
[www.computerworld.com/q?29259](http://www.computerworld.com/q?29259)

Avaya will also supply the equipment and dedicate more than 100 workers to this year's project. Doug Gardner, managing director of Avaya's World Cup effort, declined to disclose how much it will cost to set up and run the network.

He said the immensity of the job was compounded by a short time frame. Avaya was awarded the contract last June and has been required to set up in just nine months a network that would normally take two to three years to complete, Gardner said.

Gouillou said detailed attention has been paid to features such as redundancy, quality of service and network-monitoring capabilities.

Avaya built in 40% more switching capacity and network bandwidth than the expected peak usage levels, said Gardner. Partnering with telecommunications providers in Japan and South Korea, the company also laid four trunk lines across the Sea of Japan to connect the tournament's two main IT centers. If a catastrophic failure occurs at one, the other will take over its operations, according to Gardner. ▶



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**BRIEFS****Derailed Train Blocks WorldCom ISP Users**

A train derailment near Toledo, Ohio, last Thursday temporarily knocked out or disrupted Internet access for some of WorldCom Inc.'s customers. The train cut two of WorldCom's cables, affecting the Internet service provider's connections to customers in the northern and midwestern areas of the U.S. WorldCom said it didn't know how many users were affected.

**Sun Says Two More Execs Giving Up Jobs**

**SUN MICROSYSTEMS INC.** said two more senior executives will give up their full-time jobs effective July 1. Michael Lehman will step down as Sun's chief financial officer, and Larry Hamby will leave his position as executive vice president of enterprise services. The twin announcements came a week after Sun said John Shoemaker would leave his position as executive vice president of computer systems, also on July 1.

**Schwab Named CIO At Software Vendor**

**CHARLES G. SCHWAB**, who had managed global voice and data networking strategies at San Francisco-based Charles Schwab & Co., was named CIO at Mercury Interactive Corp. in Sunnyvale, Calif. Schwab will report to the chief financial officer at Mercury, which develops application testing and performance management software.

**Short Takes**

**THE U.S. POSTAL SERVICE** said it fixed a glitch that forced its package-tracking system to be shut down earlier this month. The problem was caused by 11 data corruption errors in an IBM database. . . . IBM said it plans to release by September a blade server based on INTEL CORP.'s Xeon processor, with support for running Linux and Windows applications.

# Servers Converge as Part of Unisys Strategy

**New ClearPath releases aimed at moving users to common architecture**

BY JAIKUMAR VIJAYAN

**W**ITH THREE new releases, Unisys Corp. is building on efforts to migrate users of its two proprietary mainframe lines to a common architecture based on Intel Corp. and Windows technologies.

The Blue Bell, Pa.-based company last week introduced new ClearPath server models that offer triple the system capacity and double the partitions of its existing systems, according to the company.

Like their predecessors, the

new systems are based on Unisys' Cellular MultiProcessing (CMP) architecture, which allows users to mix applications running on WinTel technology with those running on proprietary Unisys processors in a single box.

The goal is to give users of Unisys' MCP and OS 2200 mainframe operating systems a way to take advantage of their investments while offering a reliable, mainframe-class system for running newer applications, said Rod Sapp, a Unisys director.

The new systems "converge all of Unisys' legacy environ-

ments on a single technology," said James Cassell, an analyst at Stamford, Conn.-based Gartner Inc. "Users are not only going to get better price/performance but also increased functionality as a result."

The all-Intel-based ClearPath Plus Server CS 7201 model is targeted at MCP users. The system supports up to 32 processors and eight partitions.

Users can take advantage of the partitions to run a mix of MCP, Unix and Windows 2000 Advanced Server or Windows Datacenter Server applications.

The two other models introduced last week are aimed at users of the OS 2200 operating system. The ClearPath Plus Server CS 7402 box supports up to four of Unisys' propri-

**HARDWARE****Clearing a Path**

*Features of Unisys' new ClearPath Server line include the following:*

**CLEARPATH PLUS SERVER CS 7802 AND CS 7402**

- Up to 32 CMOS or Intel processors
- Runs OS 2200 or Windows
- Up to eight partitions supported on the CS 7802; up to four partitions supported on the 7402

**CLEARPATH PLUS SERVER CS 7201**

- Up to 32 Intel processors
- Runs MCP or Windows
- Supports up to eight partitions

etary CMOS chips or Intel processors and allows users to combine OS 2200 applications with Windows applications in the same box.

Meanwhile, the new CS 7802 model supports up to 32 of Unisys' CMOS processors and is also capable of supporting Intel chips. Like the other models, the system can support a mix of OS 2200, Windows and Unix applications.

**Customer Feedback**

**CARNIVAL CRUISE LINES** has purchased a 16-processor CS 7802 to run its core reservation and marketing applications, said Doug Enay, vice president of systems at Miami-based Carnival. The system is about four to five times faster than the water-cooled system it replaces and delivers far greater performance, Enay said.

"It's a very hardened, very scalable and very partitionable box," he said.

Carnival's new server is based entirely on Unisys' proprietary CMOS chips and is being used to run only OS 2200-based applications, he said. But the company is considering taking advantage of ClearPath's CMP architecture to consolidate Windows-based applications on such boxes, Enay said. ▀

**Quick Link**

For more information, visit our Server, Mainframe special coverage page.

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# IBM Adds New System to iSeries Line

**32-way server based on high-end chip**

BY JAIKUMAR VIJAYAN

A new IBM iSeries server scheduled for release this week promises midrange ease of use with mainframe power, users said.

IBM is boosting its iSeries range (formerly the AS/400) with a 32-way system based on its highest-end Power4 chip.

The company said the new eServer i890 nearly doubles the processing power of its previous top-of-the-line 24-way system and is capable of supporting up to 32 OS/400 and Linux dynamic logical partitions.

In addition, IBM announced plans to support its AIX Unix on iSeries partitions.

Such enhancements build substantially on the server consolidation capabilities already available on iSeries sys-

**AT A GLANCE****IBM's i890**

- Supports up to 32 1.3-GHz Power4 processors
- Offers up to 32 dynamic partitions
- Supports OS/400, Linux and ported Windows applications
- Integrates enterprise identity mapping function for tracking and securing user identities
- New version of OS/400, called V5R2, features enhanced Web caching, Secure Sockets Accelerators, clustering and Java support

tems, said Ian Jarman, an IBM product manager.

"Already, 44% of the [high-end] iSeries servers we ship have logical partitions, which is indicative of the workload consolidation that is going on" around the iSeries, Jarman said.

Andin International Inc., a New York-based jewelry manufacturer, is planning to buy

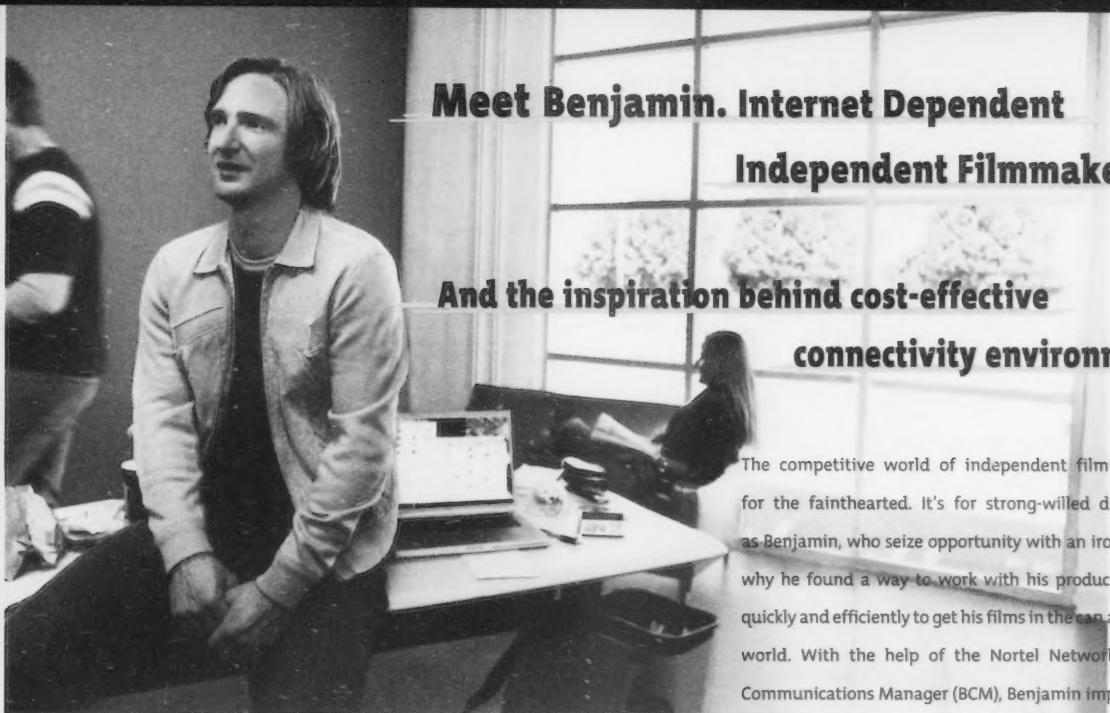
one of the new servers to power its Jewelry.com Web site.

The server's scalability and ability to be partitioned were crucial factors in the company's purchasing decision, said Kristian Chronister, a vice president at Andin.

"One of the fundamental benefits of the iSeries is that it allows me to run a large, high-traffic Web site off of one machine," Chronister said. "I don't have to create a complex server farm with switches and routers and load balancers. . . . With this, I can put everything in one box."

The i890 server is as much about new levels of performance as it is about IBM's continued commitment to the system, said Charlie Massoglia, president of Common, a Chicago-based iSeries user group.

"I think this makes it clear to both the large and small iSeries users that IBM plans to grow the machine," Massoglia said. ▀



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video of his latest project. Plus, the consolidation of a communications structure

with a single, easily managed system saves him 20% of the cost of buying and maintaining separate equipment. Which means he saves time and money so he can concentrate on producing the kinds of films that just may have him rehearsing an acceptance speech. It's just one more way Nortel Networks is making the Internet what you need it to be.

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# Financial Probes Put Pressure On Wall St. to Track Messaging

**Brokerages get proactive with IT as some are investigated for conflicts of interest**

BY LUCAS MEARIAN

Possible conflicts of interest involving Wall Street stock research analysts are expected to put even more pressure on financial services firms to introduce e-mail and instant messaging surveillance and archival technology, according to brokerage executives and analysts.

"It will be a hot issue" this year, said Ravi Jethmal, vice president of compliance at Abel/Noser Corp., an institutional brokerage house located in New York.

Last week, the National Association of Securities Dealers Inc. (NASD) said it would widen its probe of allegedly shady deals in 1999 and 2000

concerning initial public offerings (IPO) launched by J.P. Morgan Chase & Co., Goldman Sachs & Co. and FleetBoston Financial Corp.'s Robertson Stephens Inc. unit. The investigations are related to brokers taking excessive commissions from favored investors who were given preferential treatment with IPOs.

Credit Suisse First Boston Corp. recently paid \$100 million to settle charges with the U.S. Securities and Exchange Commission (SEC) and the NASD over allegations of similar IPO deals that were considered violations of securities regulations.

In January, Abel/Noser began using e-mail archiving and surveillance software in anticipa-

tion of the SEC focusing on more strict enforcement of Rule 17a-4, which covers electronic-communications storage requirements. The NASD, under its own Rule 2210 and 3010, also requires firms to monitor and store communications with clients.

## Under Scrutiny

Andy Nybo, an analyst at Needham, Mass.-based TowerGroup, said firms that aren't currently using monitoring and compliance tools "would be well advised to have those tools in place."

"I think regulatory actions like [the NASD investigation] will steadily increase scrutiny on communications [that] investment firms have with their customers and will prompt more internal tracking and monitoring tools so people can try to prevent inappropriate behavior and catch it before it

## WHAT IT MEANS By the Rules

*Here's a brief summary of what NASD Rule 2210 and SEC Rule 17a-4(f) mean to Wall Street IT:*

**According to the SEC, when Rule 17a-4 was originally adopted in 1939, it had a paper-only requirement for the initial retention of records.**

**In 1997, the SEC amended paragraph (f) of Rule 17a-4 to allow broker-dealers to store records electronically (e.g., on optical disk or magnetic tape).**

goes out to the general public," Nybo said.

Abel/Noser's software, from OTG Software Inc. in Rockville, Md., captures e-mail messages and attachments and then organizes and indexes them on a server.

Those e-mails can then be accessed via search capabilities in Microsoft Exchange or Lotus Notes, or through a Web

browser. The product also allows firms to set up policies that can scan e-mail based on a lexicon of inappropriate words, such as *discount* or *deal*, and can determine how long e-mails are kept and when they should be purged.

Jeff Joyner, a network technician at Davenport & Co., a retail brokerage house in Richmond, Va., said his firm is currently rolling out software from OTG that will allow his compliance department to automatically take samplings of e-mail traffic across the company and review them using workstations. His compliance office used to hold off on e-mail compliance searches because it could take up to four hours to find a single document, Joyner said. Using the surveillance software, searches now take about five minutes.

The moves taken by Davenport were directly related to the SEC's guidelines, said Joyner. "Anytime you keep that type of data sitting around, it's just taking up extra resources. So it's not only a fiscal burden, but it costs us in man-hours involved in maintaining accessibility," Joyner said. ▀

Continued from page 1

## Oracle

called the Oracle licensing agreement "a largely one-sided contract," a legislator from San Jose who had proposed a bill to extend the tenure of the DOIT through the end of next year said last week that he was dropping the reauthorization provision from the measure.

A spokeswoman for California Gov. Gray Davis said the action by state Assemblyman Manny Diaz puts the DOIT's fate up in the air. "I think it's fair to say that the state will still have some role in the oversight of IT purchases [by individual agencies], but what form that's going to take, I don't know yet," she said.

The DOIT isn't a large agency; a spokesman for the department said it has an \$11 million annual budget and 69

employees, most of whom are IT professionals and project managers. But its demise would leave the government of the most populous state in the U.S. without a central IT arm, unless a replacement is put in place by July 1.

The DOIT's spokesman declined to comment on last week's events, other than to say that the agency maintains it still has a role to play in helping the state save money on IT procurements. In a statement

that was included in the auditor's report, the DOIT said it and the other agencies approved the Oracle contract "did the best job they could under the circumstances."

But the report by state auditor Elaine M. Howle claimed that the six-year enterprise licensing agreement could cost the state government up to \$41 million more than standard software licenses would have.

In a heads-up to other users who are looking to negotiate

similar enterprise deals, Howle said the DOIT and the other agencies approved the contract without validating the cost-savings data presented by Oracle and Logicon Inc., a Herndon, Va.-based Oracle reseller that has since changed its name to Northrop Grumman Information Technology.

The auditor also contended that the DOIT signed off on the contract without fully assessing how many of the 270,000 potential end users covered by the deal would actually need access to an Oracle database.

Diaz said in a statement last week that before the auditor's report was issued, he had been willing to give the DOIT a temporary reprieve in the hope that it could "improve its overall performance."

But, he added, the agency's "blatant lack of oversight in the Oracle contract proved to me that DOIT cannot [handle] its primary responsibility of protect-

ing taxpayers' money in major IT investments."

While Diaz removed the proposed lifeline for the DOIT from his bill, he also amended the legislation to include permanent reauthorization of three state-run data centers that support various California government agencies. The data centers are managed by those agencies, not the DOIT.

In his statement, Diaz said, "I still believe that...some entity needs to be held accountable for the millions of dollars that the state spends on IT investment every year."

Oracle continued to defend the licensing contract, saying that its preliminary review of Howle's report "found a number of serious and inappropriate misrepresentations about our business practices." Oracle also said there were "inaccuracies and questionable assumptions in the calculations" that the auditor made. ▀

## Database Dispute

*What the different sides are saying about the California state government's \$126 million Oracle licensing agreement:*

**STATE AUDITOR ELAINE M. HOWLE:** The deal is "a largely one-sided contract," and promised cost savings data appear to be "significantly overstated."

**THE CALIFORNIA DOIT:** The agencies that negotiated the contract "made a sincere effort to reduce the cost of IT" for other state departments.

**ORACLE:** The licensing agreement lets state agencies "access Oracle technology at an exceptionally attractive price."

## THE STRAIGHT GOODS ON DATABASES.

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Data stored in the database can be retrieved as XML, allowing for easy integration of your existing information with your new Web applications.

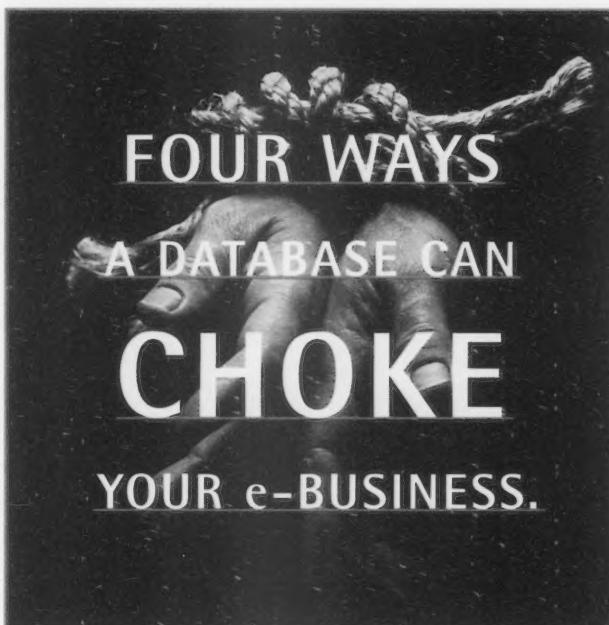
A general XML-Query facility (XQL) allows you to easily query XML data whether it's stored in the DBMS, a flat file or even a URL. Bottom line: faster development times, faster access to the information you need.

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# IBM Sets New Plan for Delayed Storage Management Applications

*Virtualization engine, file system due out next year*

BY LUCAS MEARIAN

**A**FTER SEVERAL false starts in developing multivendor storage management software, IBM last week announced a new road map for delivering Linux-based storage virtualization and file management tools. But the applications still aren't due for release until next year.

IBM's plan includes a virtualization engine that's designed to give IT managers a single point of control over disk capacity within storage networks, plus a tool called Storage Tank that will let different application servers share files. The tools will support open storage-management interfaces based on standards proposed by the Mountain View, Calif.-based Storage Networking Industry Association, IBM said.

But Storage Tank was initially announced in late 2000 and promised for release in the second quarter of last

## Tools to Come

*Details about the storage management software IBM is developing:*

### STORAGE VIRTUALIZATION ENGINE

- A disk management tool that will run on clusters of Linux-based IBM xSeries servers
- Will let storage managers move data, add disks and reallocate storage space without affecting application performance

### STORAGE TANK

- A storage-area network file management system that also will run on Linux clusters
- Will provide shared file access to application servers running under AIX, Solaris, HP-UX, Linux and Windows 2000/XP

year. IBM officials later said the software would be rolled out in stages during the second half of last year.

Brian Truskowski, vice president of technology for IBM's Storage Systems Group, said the company made the earlier announcement to let users know what it was planning. "In retrospect, maybe we shouldn't have done it, but we really wanted to talk about investments we

were making in technology," he said.

Despite the new plan, Truskowski noted, "as far as what was done in development up to now, we're largely on schedule." Beta testing of the upcoming tools will start this year, he said.

Storage rivals such as Hopkinton, Mass.-based EMC Corp. and Santa Clara, Calif.-based Hitachi Data Systems Corp. have released similar tools during the past 18 months. But Arun Tanja, an analyst at The Enterprise Storage Group Inc. in Milford, Mass., said existing products aren't nearly as sophisticated as what IBM is proposing to deliver. IBM's software should let systems administrators manage both network-attached storage devices and storage-area networks from a single point, he said.

The tools address storage convergence, "at least conceptually, at more significant levels than anywhere in the industry today," Tanja said.

Douglas Roberts, manager of system services at Hannaford Bros. Co., a Scarborough, Maine-based grocery store chain, has installed two of IBM's Enterprise Storage Server disk arrays. He said the upcoming tools could make it easier to split storage space among different departments.

"If it means being able to carve up large chunks of disk [capacity] and allocate it around the enterprise, then it's definitely something I'm interested in," Roberts said. ▀

# Bank Hones Project Management Skills With Redesign

*Huntington's new Web site posed integration hurdles*

BY LUCAS MEARIAN

Huntington Bancshares Inc., a bank holding company with \$26 billion in assets, is in the final stages of a yearlong Web site redesign effort that has put its project management skills to the test.

The Columbus, Ohio-based company launched its new Web site at the start of this month, using XML-based integration technology to give its online customers access to real-time balance information and various banking services. It's currently testing a teller system that will be linked to the Web site so tellers can view up-to-date balance data online.

Huntington CIO Joe Gottron said the bank hopes the revamp will help to at least double the percentage of its

customers who bank online, which currently stands at 11%. But, he added, there were "four or five very intense moments" during which the whole project was almost stopped due to its complexity.

Huntington had to integrate its different customer service applications as part of the project, which Gottron said was "not easy to do because of the number of legacy applications that have grown over the years within parts of the company."

In addition, the project team spanned three time zones and involved two software vendors: Columbus-based e-Bank LLC and Hillsboro, Ore.-based Corillian Corp., whose software is being hosted at a remote site, Gottron noted. As a



**CIO JOE GOTTRON**  
hopes the new site  
will double online  
banking business.

result, communication was key to making the project work, he said.

For example, an executive steering committee met weekly to review the project's progress and the work that was planned for the following week. Gottron said the meetings were designed "to make sure that if we were missing a beat on the project, no matter which company [was responsible], we were on top of it and adding additional resources to make up for it."

Dan Vermeire, chief technology officer at Huntington, said the Windows 2000-based Web site can aggregate customer data from all of the bank's core applications, including its credit card, mortgage and consumer lending systems.

Average Web site response times have improved from about 7 seconds to 4.7 seconds, according to Gottron. He was unable to provide an exact cost for the project but said it runs into the "millions" of dollars. ▀

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When it comes to getting your Internet services needs met, the financial stability of your provider is



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**BRIEFS****Network Associates Pulls McAfee.com Bid**

Network Associates Inc. withdrew its offer to buy out its subsidiary, Sunnyvale, Calif.-based McAfee.com Corp., saying it had discovered accounting errors that will require a restatement of its own financial results from 1999 and 2000. The Santa Clara, Calif.-based security software vendor disclosed last month that its accounting practices were being investigated by the Securities and Exchange Commission.

**RSA Reorganizes, Cuts Workforce**

RSA Security Inc. said it plans to reorganize its software development operations into three new business units and lay off about 200 employees, for a 17% workforce reduction. As part of the restructuring, RSA also plans to drop some of its Keon public-key infrastructure certification products. The changes follow a \$13.7 million first-quarter loss for Bedford, Mass.-based RSA.

**EDS Up in Q1, But Lowers Forecast**

Electronic Data Systems Corp. reported a first-quarter net profit of \$354 million on revenue of \$5.3 billion, which was a 7% increase over the year-earlier level of \$5 billion. But business was less than expected, and Plano, Texas-based EDS lowered its outlook for the rest of the year. CEO Dick Brown blamed the shortfall on postponed spending decisions by corporate users.

**Short Takes**

TIBCO SOFTWARE INC. in Palo Alto, Calif., completed an acquisition of TALARIAN CORP., a developer of real-time data delivery software in Los Altos, Calif. . . . Sunnyvale, Calif.-based ARIBA INC. reported a net loss of \$154 million for its second quarter ended March 31, on revenue of \$57.2 million.

# Telecom Firms and Vendors Face Malaise

*Slow sales could help users get good deals*

BY MATT HAMBLEN

**S**EVERAL telecommunications companies and some of the vendors that supply them with networking equipment reported a raft of bad financial news last week, providing ample evidence that a business rebound isn't likely this year.

The continued problems portend more consolidation moves by the affected companies. For example, Lucent Technologies Inc. announced plans to cut about 6,000 of its remaining 56,000 jobs in a new round of layoffs. And LM Ericsson Telephone Co. said it will eliminate 17,000 positions, nearly one-fifth of its workforce.

But the situation could give IT and telecommunications managers a golden opportunity to renegotiate their data and voice network services contracts, said Bill Lesieur, an analyst at Technology Business Research Inc. in Hampton, N.H. Bargaining power has shifted heavily in favor of users, he said.

"The general telecom industry was projecting a return [to normalcy] in the second half of the year, but the reality is that momentum has not kicked in fast enough," Lesieur said. "It's an ideal time to get some good deals."

**Tough Times for Vendors**

In contrast, the news is stark for many vendors. For example, Murray Hill, N.J.-based Lucent suffered its eighth consecutive quarterly loss. Stockholm-based Ericsson reported a first-quarter loss of about \$359 million and warned that it won't return to profitability this year. Sales will be lower than expected because of further cuts in technology investments by many network operators, said Ericsson CEO Kurt Hellstrom.

In a prime example of that trend, Corvis Corp., a Columbia, Md.-based vendor of optical networking equipment, disclosed that Qwest Communications International Inc. has sharply scaled back purchase commitments it made.

Denver-based Qwest, which originally signed a \$150 million contract with Corvis, is now planning to buy just \$7 million worth of optical products this year and \$5 million next year. Corvis said Qwest could still spend the additional \$138 mil-

lion but has no binding obligation to do so.

On the network services side, WorldCom Inc.'s credit rating was downgraded by three ratings firms after the company cut this year's revenue forecast for its corporate networking unit by \$1 billion. AT&T Corp. reported another big loss, and Williams Communications Group Inc. in Tulsa, Okla., filed for Chapter 11 bankruptcy protection.

Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., said plenty of core network infrastructure gear was installed by telecommuni-

**Still Sinking**

*Last week's announcements by network operators included the following:*

**AT&T** reported a \$975 million first-quarter net loss as its revenue fell 8% year to year.

**WorldCom** lowered the yearly revenue outlook for its corporate services unit by 4%.

**Williams Communications** sought Chapter 11 protection in a deal to eliminate \$6 billion worth of debt.

tions firms before the recession, leaving a market glut.

"There's been an overbuilding of the network core by [network] providers," Mathias said. "We're not done with the downturn in telecom, and it's going to take years to get rid of the excess capacity." ▀

# Cisco Looks to Increase Network, Application Ties

*Plans for future convergence of switches, routers*

BY MICHAEL MEEHAN

SAN JOSE

Cisco Systems Inc. is plotting a strategy that's aimed at driving the networking market leader further into the upper layers of IT infrastructures, where it would handle functions more often associated with middleware than with networking hardware.

Company executives said this month that the plan includes a future convergence of Cisco routers and switches, as well as a push for standard storage, application programming interfaces, support for content management and optimization of application performance on networks.

Some of the pieces are in place; for example, Cisco already offers a network content-transformation engine that can

feed data to multiple devices. But the company said it could take up to five years to roll out what it has in mind.

Zeus Kerravala, an analyst at The Yankee Group in Boston, said that creating greater harmony between applications and the networks they run on is a critical next-generation step for networking vendors.

"It's no longer about the technology in the box; it's about what that box can do for your business," Kerravala said. "And a lot of these network

## AT A GLANCE In the Works

*Cisco plans to pursue new technologies and features, including the following:*

- Converged devices combining its Layer 2 switches and Layer 3 routers
- Voice quality of service extended to data applications
- Real-time, per-transaction backups for all applications
- Embedded security and load balancing features at every layer of a network

guys are still trying to find their way through that."

Laurie Vickers, an analyst at Cahners In-Stat/MDR in Scottsdale, Ariz., noted that LAN switches have become a commodity and said that vendors have to find a way to add value at the transport, session, presentation and application layers of a network.

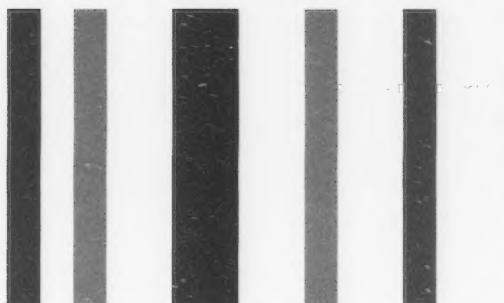
Cisco is certainly talking the talk. "A lot of what we're trying to do is make the network relevant to the applications," said Eugene Lee, vice president of enterprise marketing at Cisco.

Lee said Cisco needs to work with application vendors to improve performance on existing networks and take advantage of emerging technologies such as gigabit-per-second data feeds to desktop devices.

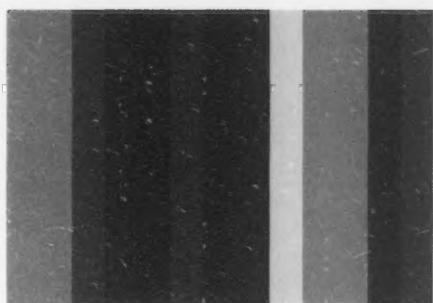
But Vickers said it would take a big shift in thinking by corporate application developers to focus on networking concerns upfront. The technology envisioned by Cisco has "to be real transparent to the user," she said. "Otherwise, they're not going to know what to do with it." ▀



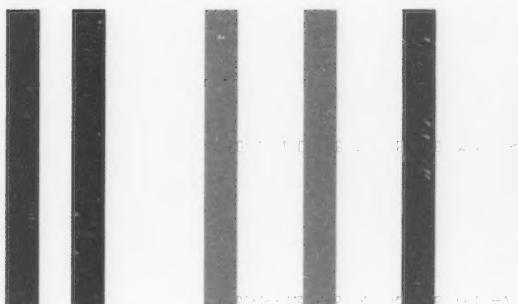
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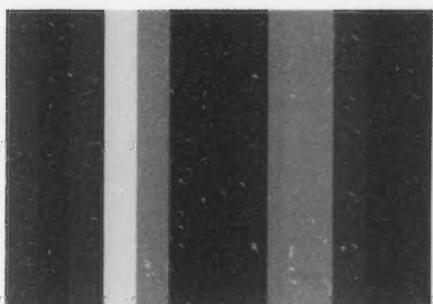
**Regional Floral Network, January 14**



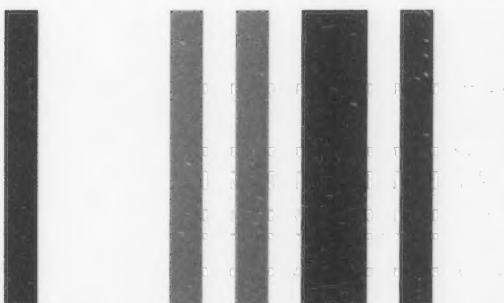
**Regional Floral Network, February 14**



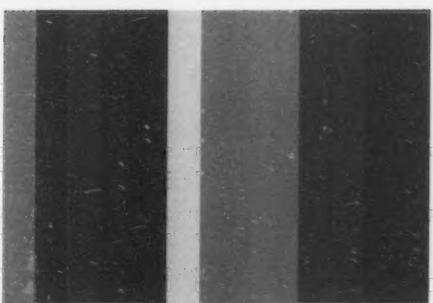
**Online Gift Retailer, October 24**



**Online Gift Retailer, December 24**



**Internet Tax Prep Service, September 14**



**Internet Tax Prep Service, April 14**

## **HP Blade servers are here. The most flexible way to manage your infrastructure.**

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They are complete, ultra-dense servers on single modular cards—including processor, memory and all network connections—that come with a choice of Linux, Windows® or HP-UX.

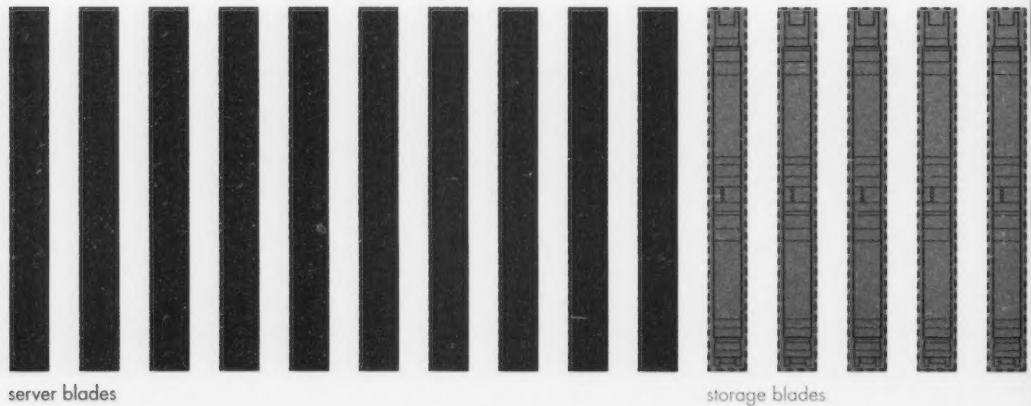
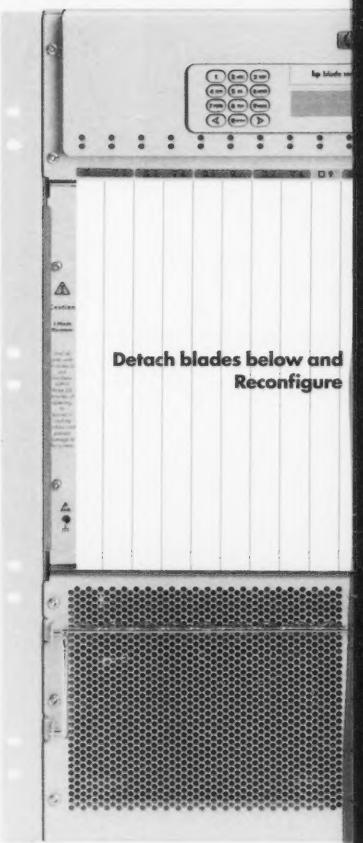
### **Easier to manage and maintain.**

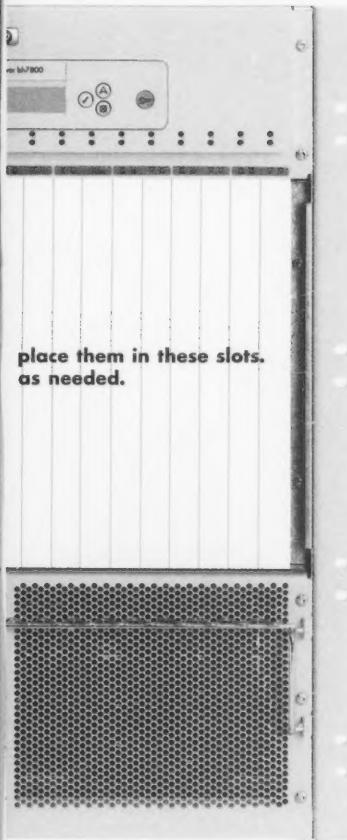
This elegant, standards-based design allows you to easily combine server, storage, networking, appliance and management blades in the same 38-slot chassis, then reconfigure on the fly to handle expanding or contracting workloads.

Each blade connects to the network infrastructure already embedded in the chassis, dramatically cutting the number of cables needed. With far fewer cables to fuss with, they're far easier to manage and maintain than conventional servers. Even management is shared. Which means all 38 blades can be viewed and monitored as a single system.

### **More efficient and reliable.**

Since all blades in the chassis share the same power and cooling source, they're also more energy and space efficient. In fact, you'll find HP Blade servers





reduce the typical number of fans and power supplies required by as much as 60%.

The reliability advantages of moving to blades are profound. To give you some perspective, imagine building a server cluster solution that is comparable to a fully loaded HP Blade server cabinet. The projected annual failure rate of the HP Blade server solution is about 41% lower than that of the comparable server cluster.

In the unlikely event that a blade should fail, the problem is isolated in the same way that multiple systems connected by I/O are isolated from each other.

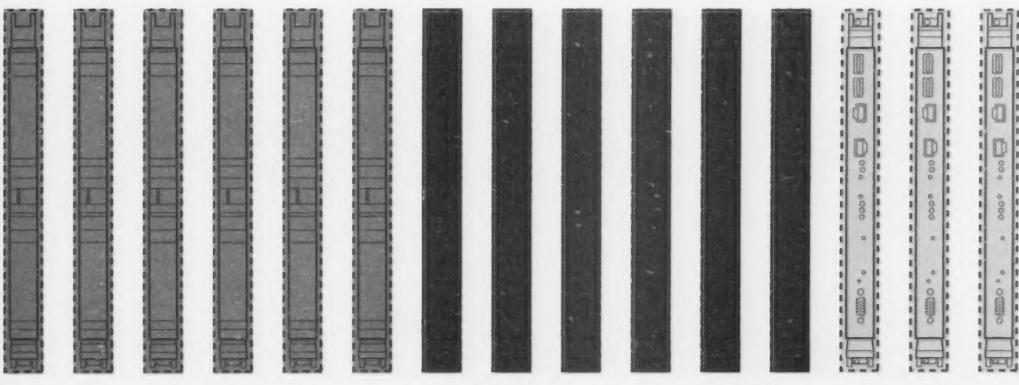
#### **Is your server as sharp as a blade?**

Servicing a blade is as easy as deploying one. Each blade is freely accessible from both the front and rear of the cabinet and can thus be replaced at a moment's notice. Each slot can be powered on or off separately. Hot-swap and hot-plug technology is implemented throughout, allowing for the seamless addition or replacement of blades while the rest of your infrastructure continues to hum.

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network blades

management blades

appliance blades

PATRICIA KEEFE

# Behind the Numbers

**W**HOD HAVE THOUGHT that it would be so difficult to pin down some basic statistics about IT unemployment? Here we are in a recession-wracked economy, in a technology-crazed country obsessed with what people do for a living.

Yet it's hard to find real answers.

We wanted to cut through the emotional fog surrounding this issue and give you some hard, cold, definitive facts about the state of IT unemployment in our special report on Page One this week. To some degree, we have. But it was startling to find that some statistics aren't tracked anymore, while others are in dispute.

Moreover, some information sources have opinionated agendas that raise questions about the objectivity of their data.

However, what we discovered is more important than a sheaf of numbers. If you're unemployed, the picture created by the statistics we unearthed are the least of your problems. Looking ahead, the situation isn't going get any easier — no matter which side of the IT employment debate you're on.

First, whatever you think about the H-1B program, the real issue is its long-term impact. It's supposed to create temporary jobs for temporary workers. But the three-year visas are easily renewed, and numerous studies show that the majority of H-1B holders want to become permanent workers, if not citizens. That means much of the imported workforce — which tends to be young and highly educated — isn't likely to be going anywhere.

While economists may be waxing warmly about a summer uptick in



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the economy, the IT managers we talked to offered a gloomier view, especially for jobs.

In fact, we're about to enter a new era of IT employment, management and staff deployment. In the short term, the picture is bleak. Companies have downsized and cut their IT projects to the bone. After years of embracing every IT trend

that came along, businesses now find themselves surrounded by a sea of application islands. And while two years of mergers, outsourcing, red ink and pink slips have reversed a tight labor market, IT chiefs are stuck with minimal budgets. They

can't hire a lot of people, and they can't pay them a lot (or, if you like, won't pay much because it's now a buyer's market), and when they do hire, they want people who are extremely versatile. They want adaptable, self-motivated team players. For job seekers and employers alike, that's a tall order.

For employers, this is an opportunity to embrace workforce planning — an approach to help accurately forecast staffing needs that better align with business plans and the existing IT organization. Ideally, this will help keep staffing levels in check and enable you to make the most of the workers you do have.

For the unemployed, it means that if you want your résumé to be the one plucked out of the hundreds sent in response to every job lead, you've got to be the king of flexibility and a jack of all technologies — or at least the ones the hiring manager is looking for. You've got to be able to talk about contributions, not skills. Take stock of yourself. What do you want to do? How much more are you willing to invest in an IT career? This is critical, because unless you make changes, your next job might not be in IT. ▶



PIMM FOX

## Patriot Games: The IT Call-up

UNCLE SAM wants you — for work, not war. Within the next five years, approximately 45% of all federal workers will be eligible for retirement, according to Steve Rohleder, managing partner of the U.S. government practice at Accenture. IT positions will be hit hard as workers decamp for private industry, where salary caps don't apply.

To combat the situation, Rep. Tom Davis (R-Va.) sponsored legislation to create a Digital Tech Corps. The bill has passed in the House, and it's headed to Sen.

Joseph Lieberman's (D-Conn.) Government Affairs Committee for a vote.

Under the bill, private industry would let IT professionals do a stint in the federal government for six months to two years and let them retain their corporate benefits. They wouldn't become federal employees but would work in the government. Individuals with the skills — and desire — to fill government positions would receive government-level salaries from Uncle Sam while the companies make up the difference of their private-sector pay.

IT workers could gain valuable experience working for the government, and the government would get the benefit of highly trained private-sector workers. But the bill would go a step further in making it possible for government workers to temporarily move to the private sector while retaining their government benefits and pay.

"The legislation would permit a two-way transfer of talent that will reap great benefits for the American people, as our government gets an infusion of IT talent to kick-start e-government initiatives and help fight the war on ter-



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rism at home and abroad," said Davis.

Grand and noble thinking, but the necessity of such a bill highlights the harsh truth behind patriotism in an age of stock options, job mobility and self-interest.

Eighty percent of college graduates have little interest in going into public service because of the pay, says Steve Kelman, a professor of public policy at Harvard University's John F. Kennedy School of Government. "This bill is a practical way to provide an opportunity to have people commit a portion of their career to public service," he says.

Kelman, who worked to reform the way the government buys IT products as administrator in the Office of Federal Procurement Policy in the Clinton administration, said some of the biggest issues in government involve the interconnectivity between agencies, the ability to manage large IT projects, and cybersecurity.

Accepting that patriotism costs money may be unpleasant, but if companies and individuals support the bill, more people will be able to say they did something during the war on terrorism.

Do your part by contacting Sen. Lieberman at <http://lieberman.senate.gov/newsite/contact.cfm> and urge him to pass the legislation. ▶

DAVID MOSCHELLA

## Some IT Terms Really Are Greek

*"Those that understood him smiled at one another and shook their heads; but, for mine own part, it was Greek to me."*

—Julius Caesar, Act I, Scene 2.

WHILE IT'S always a good idea to brush up on your Shakespeare, who would have thought that the ancient Greek language would find its way to the very frontiers of IT? *Metadata* felt grandiloquent enough, but what are we to make of the emergence of terms such as *semantic*, *taxonomy* and, most strangely of all, *ontology*?

History says that whenever the industry lexicon starts to expand, it's usually in response to new technology challenges and usage. Consider the origins and meanings of each of these four words, taken from Merriam-Webster's online and off-line dictionaries.

**Metadata.** The Greek (and Latin) root *meta* has many meanings, but in academic discussions, the primary use is to indicate a "more comprehensive, transcending" version of a subject. For example, metaphysics and metamathematics are disciplines designed "to deal critically with the original one." Within the IT industry, metadata is basically data about data, a related but slightly altered form of usage. Standard intra- and intercompany metadata has clearly become an increasingly important IT industry concern.

**Semantic.** "Of or pertaining to meaning, [especially] in language," from *semainein*, which is "to signify or mean." During the past few years, there has been much talk about the emergence of a "semantic Web," a concept championed by none other than Tim Berners-Lee. Semantic Web applications are intelligent systems where computers can effectively understand the meaning of the information transmitted, unlike HTML-based systems that



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are mostly concerned with how information is displayed. Semantic understanding will often be required if Web services are to reach their full potential.

**Taxonomy.** Derived from *taxis*, meaning "arrangement or order," taxonomies are classification systems. Historically, the term has mostly been used in the life sciences to describe the rigorous classification of species. As with metadata, today's IT usage is slightly different. Whereas each biological species has a unique classification, information taxonomies are often used to organize documents, many of which need to be accessible via multiple paths. Taxonomy software is becoming an increasingly important aspect of enterprise content management, with Applied Semantics, Semio, Autonomy and Verity among the key vendors.

**Ontology.** This comes from *ont-*, the present participle of *einal*, "to be — more as is." To philosophers, ontology is a rarefied "branch of metaphysics

dealing with the nature of being." The term was co-opted by the artificial intelligence community to encompass the systems of knowledge and rules needed for specific AI applications. On the Web, the term applies to the many ongoing efforts to develop topic-specific sets of XML-friendly language, rules and definitions. Essentially, IT ontologies are logical supersets that combine metadata, taxonomies and semantics into formal systems that can be encoded in software, enabling diverse Web applications to truly understand one another.

While all of this might sound like much ado about semantics to many readers, there's an important pattern at work. In the past, IT industry standardization has focused on hardware, software and communications technologies. But now, the standards frontier is shifting to the information itself. This task will require the systematic management of business terms and their usage, employing the sort of logic the ancient philosophers set in motion some 2,500 years ago.

But going forward, these terms shouldn't be Greek to you. ▶

## READERS' LETTERS

### A Threat to Privacy

A UNIFORM DRIVER'S license standard is a good idea in some respects, but the privacy concerns are valid ["License Bill Could Create IT Headaches," News, April 22]. Lest we forget, there is no constitutional mandate for this sort of thing — and perhaps no constitutional permission. We must approach this not merely — or mainly — as a technical issue.

Thomas Zabel  
Dallas

### Get Cyc DB a Library Card

The ARTICLE "Computerizing Common Sense" [Future Watch, April 8] suggests that a team of people is the only source for the addition of assertions into the Cyc database. Why limit it to that? Sure, you can depend on "millions of people" for entry, but why couldn't Cyc expand its knowledge the same way

humans do: by observing? If Cyc is as advanced as Cy-corp CEO Doug Lenat suggests, then it should be able to read the total sum of human literature (starting with electronic sources, obviously), referring to encyclopedias and dictionaries as needed, to increase its knowledge base far faster than even millions of people can enter the information.

Russell Judge  
Dayton, Ohio

### Cobol Forever

I AM AN OLD-TIME programmer of assembler and Cobol who has also studied Visual Basic, C, C++ and Java ["Behind Spaghetti Code," Readers' Letters, April 8]. It amazes me that companies are crazy for C, C++ or Java as a main application language. These languages all use a scientific, mathematical syntax, and none supports decimal arithmetic, the lifeblood of business. Java isn't even executable,

and the overhead of processing a Java program increases system requirements dramatically. Moreover, many Java sites won't work properly on Windows.

I'm aware of three companies that produce Cobol compilers for Windows and Unix platforms. The Cobol of 1997 is fully object-oriented, with dynamic HTML support and complete compatibility with VB, C and C++. Cobol 2002 has many other facilities, such as XML support. And firms would be wise to reconsider the languages they use, if they want their Web sites to attract international business.

Charles E. Karges  
Orange, Calif.

### Know What You Have

C APACITY PLANNING and performance management should be priorities today ["Playing Hardball," News Opinion, April 15]. If you want to save money, know what you have

on the floor and how it's performing. Instead of buying 15 more servers for this or that project, why not use a product that can tell you if you have the capacity somewhere else? Can you consolidate? Can you renegotiate your contract with a vendor after overzealous purchasing? Do companies look at this? Unbelievably, few do.

James Boykin  
Mid-Atlantic account manager  
Information Systems Manager Inc.  
Bethlehem, Pa.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: [letters@computerworld.com](mailto:letters@computerworld.com). Include an address and phone number for immediate verification.

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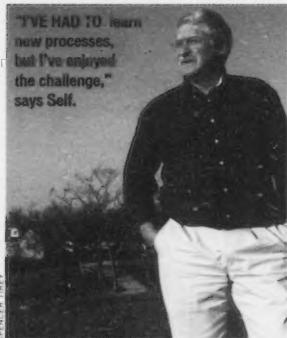
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# BUSINESS

## THIS WEEK



### FARMED OUT

Blake Self (above), a regional infrastructure manager who had spent nearly three decades working at Weyerhaeuser, wasn't looking to be traded to EDS last year in an outsourcing deal. But he's pretty happy about the way things turned out.

PAGE 30

### MONEY CLIP

Companies such as American Eagle Outfitters are seeing solid payback from their supply chain management software investments by flattening their inventories and streamlining their distribution channels.

PAGE 34

### FEAR FACTOR

American IT workers living abroad have had to contend with security anxieties, for themselves and their families, following the Sept. 11 terrorist attacks.

PAGE 36

### INNER-CITY STARS

A Chicago-based organization is helping to train up-and-coming IT professionals to become the next generation of industry leaders, writes Diversity columnist Kathleen Melymuka.

PAGE 39

REGIS MCKENNA

## A New Role for IT

**T**RADITIONALLY, THE ROLE OF MARKETING has been to provide expertise and insight on consumer behavior, assess competition, manage distribution, plan and develop new markets, develop communication programs, manage the brand and do the creative and operational things that stimulate and manage market demand.

With the rise of broadcast media, particularly television, marketing evolved as a specialized function that had the ability to attract and keep customer attention and loyalty. Its magic came in the design and dissemination of "the message." Changing the customer's mind and behavior — not customer satisfaction — became the priority. In effect, marketing evolved into a pseudopsychological activity that seemed to be more entertainment- than service-oriented. Meanwhile, the nitty-gritties of functions such as distribution, pricing, detailing, logistics, training and service — all of which were once fundamental marketing activities essential to brand development — have been revolutionized by IT and the Internet.

As a corporate function, marketing continues to focus largely on shaping customers' minds, like it did 50 years ago. IT, on the other hand, is evolving as the nerve center of customer information and satisfaction. From transaction feedback and response, to managing the supply chain, developing engaging applications and helping synchronize diverse customer success points, IT is being increasingly drawn into the process of building producer/consumer relationships.

The "IT-ification" of the supply chain has brought those relationships closer than did traditional marketing. IT's function in the supply chain helps a company touch each customer directly by improving the reliability of supply and the system's ability to identify and respond to repeat customers. It also manages the diversity of consumer choice and is a vehicle for customer feedback. The Internet, meanwhile, has narrowed the distance between customer want or need and customer satisfaction.

A few years ago, it would have been unimaginable that software would manage customer relationships. But now, CRM, self-service capabilities, synchronized database access for mobile consumers, price optimization programs and an array of other Web-based services and applications are drawing IT professionals into the marketing arena.

This is new, strategic ground for IT and marketing. For its role, IT must expand the

customer-supporting network of relationships and Web-based applications so that they become more accessible and engaging.

Dialogue with customers and key business partners is how we all learn to compete and survive. Today's enterprise network infrastructure is broadly deployed internally and externally, and the CIO is seeing his role expand into every business area and function. More CIOs, much like today's evolving CEOs, are integrating resources to achieve the most productive and competitive business solutions for servicing customers. In a sense, everyone in the enterprise is engaged in marketing to help create and sustain customer relationships, but IT has an added responsibility in the networked enterprise: keeping customer dialogue active and engaging.

Like the role of the CIO, the definition of marketing is changing. I use this definition as a guide for the future: *Marketing is the continuous process of organizational learning, whereby the enterprise gains knowledge interacting with customers and the marketplace so as to innovate, adapt and respond competitively.* To help fulfill that, IT managers can do the following:

- Develop a road map of the enterprise's marketing architecture. Connect the network nodes or points of contact and the interface that directly support and enhance customer support and service.
- Evaluate benchmarks and "best cases" addressing network interfaces, but look outside your particular industry for new, creative ways of doing this.
- Develop "access circles," modeled on the quality-circles idea, where IT, marketing, partners and customers discuss how IT can improve its services.
- Follow your instincts. Most IT people I have spoken with understand the competitive marketplace and what's technologically possible to support customers.
- As the idea and function of marketing become more fragmented and diffuse, IT is emerging as the resource that producers and customers rely on for building and maintaining value-added, lasting relationships. In marketing, that's called branding. ▀



REGIS MCKENNA, chairman of The McKenna Group in Mountain View, Calif., is the author of *Total Access*, a new book published by Harvard Business School Press on future changes in business's approach to marketing.

# Opting for Outsourcing

**After almost three decades at Weyerhaeuser, an IT veteran says life as a rebadged EDS employee suits him just fine. By Steve Ulfelder**

**O**N MONDAY, March 5, 2001, Blake Self left his farm in Kirby, Ark., at the usual time. He made the familiar 40-minute commute to Hot Springs.

Parked in the lot at the building he'd worked in for 15 years. Walked inside, got coffee from the same old machine and sat down at the same old desk.

But something was different.

Self had left the building the previous Friday as a regional infrastructure manager at Weyerhaeuser Co. Now, on Monday morning, his access card read "Electronic Data Systems Corp."

Outsourcing gets a lot of negative press. Corporations that outsource major portions of their IT to the IBMs, Computer Sciences and EDSs of the world rarely seem to achieve the returns they expected; it's not rare for outsourcing deals to be restructured amid mutual disappointment.

And then there's the personal angle: Workers spend years building seniority and a reputation at one company, only to be told that they've been traded to another organization with a different management style and culture.

IT outsourcing "is implemented as if it were a finance-only decision," says Karyl Innis, whose Dallas-based firm, The Innis Co., consults with Fortune 1,000 companies on career trends. "But for the individual, it causes a number of almost primal concerns."

Indeed, employee reactions to rebadging run the gamut. "Some people are excited about it, but you have people who are devastated," says Annie Stevens, founder of Boston-based career coaching and outplacement firm ClearRock Inc. "They knew it was coming, but they're still in shock."

Experts say the initial phase of an outsourcing engagement — starting

with the day the IT staff is informed and ending about a year after the implementation — is the toughest part.

"Even the hardest, most independent employee, when they see they're being let go or rebadged, will always feel rejection," says Stevens.

## Accepting Change

That's why we checked in with Blake Self, who spent nearly three decades at Weyerhaeuser before the Federal Way, Wash.-based forestry products giant signed a seven-year outsourcing contract with Plano, Texas-based EDS. Under the contract, EDS assumed responsibilities such as network, desktop and server management, as well as mainframe and help desk services.

Self's 106-member team would still support all manner of hardware, from PCs to Windows NT and Unix servers to LAN switches and hubs — but now

they would do so for a new employer.

So, how has Year 1 gone?

Not bad, from Self's point of view.

Not bad at all.

In 1993, Weyerhaeuser began to centralize its IT functions. That effort ebbed and flowed. Then, in 1999, word came down that the company was talking with outsourcing. Self praises Weyerhaeuser for pulling IT staffers into the loop early. "They were very open with the entire staff," he says. "Everybody knew it was coming."

But being informed isn't the same as being happy. Self says he and his coworkers went through various stages of denial and anger before most accepted the shift. At the time, Mark Devries, a Weyerhaeuser infrastructure manager, told *Computerworld* that he had "lots of mixed feelings. Even when you know about it beforehand, there's still a lot of change to digest." [See "Outsourced IT Workers Feel Anger, Frustration," News, March 5, 2001.]

After weighing his options, Self made the leap to EDS. "I looked at my options," he says. "I could have stayed with Weyerhaeuser. They were keeping some [IT] people [on staff]. But after I got through my reservations, I wanted to go with EDS."

The reasons were both personal and professional. "I put a stake in the ground a few years ago when I bought a little farm," Self says. He has three sons and three grandsons living nearby. If he stayed with Weyerhaeuser, he decided, any significant promotion would entail a move to Federal Way as a member of Weyerhaeuser's team that manages the EDS relationship. But Self believes that by working for EDS, he'll find growth opportunities at home.

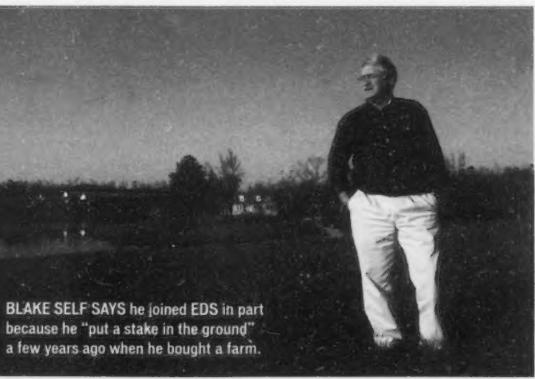
With the getting-to-know-you phase over, Self's group began to implement EDS's Digital Workflow process, a step toward streamlining internal support. "I've had to learn new processes, but I've enjoyed the challenge," he says.

But what about the intangibles? When asked if his loyalties are divided, Self says, "You'd think the answer would be yes because of all the years I spent with Weyerhaeuser and all the people I built relationships with. But no. EDS and Weyerhaeuser entered into this arrangement, and I'm tasked with supporting the same businesses I did before." So — contrary to conventional wisdom — for at least one IT veteran, outsourcing has brought stability and continuity. ▀

## The Ins and Outs

Here's the upshot of what the outsourcing transition has meant to Blake Self both personally and professionally:

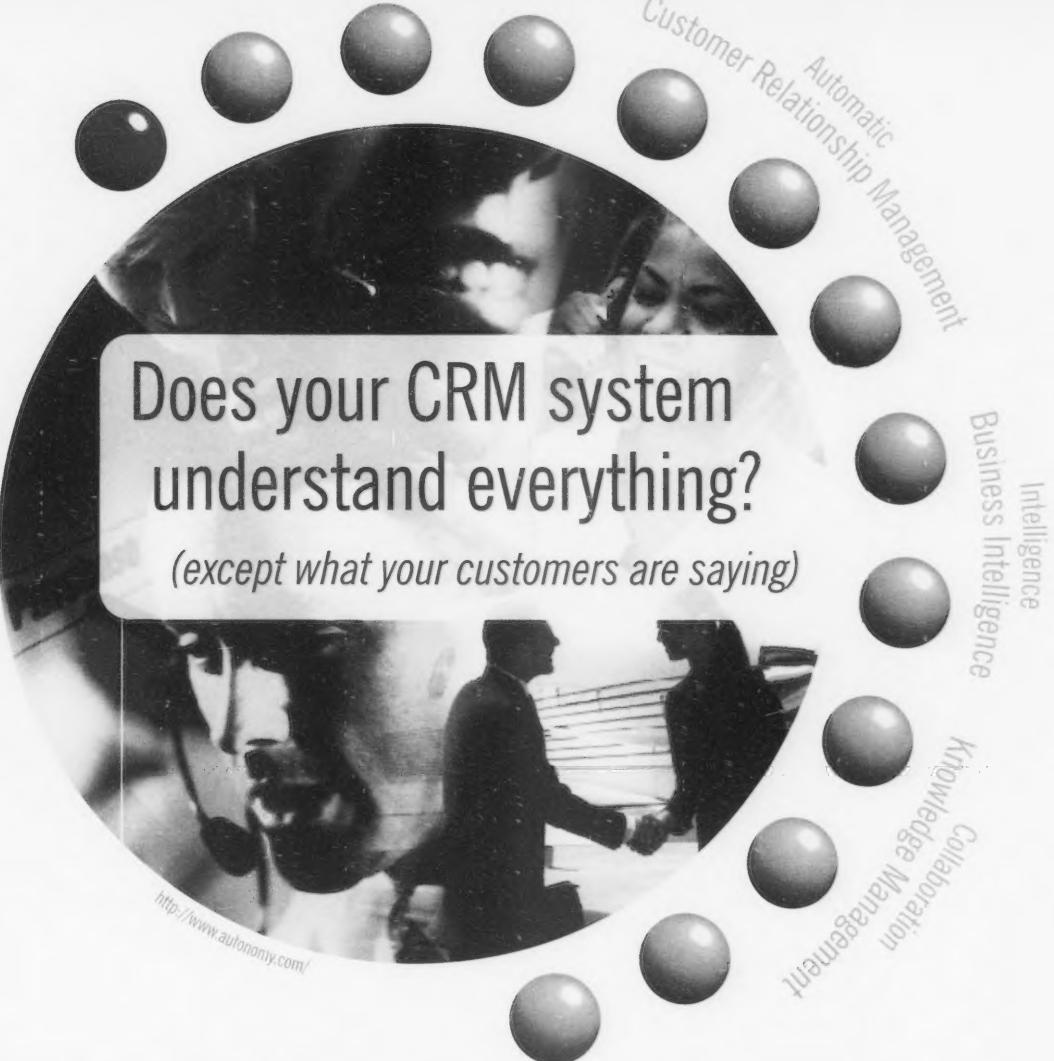
- By accepting an offer from EDS in Hot Springs, Ark., Self was able to keep a farm he recently bought in nearby Kirby and stay close to his children and grandchildren.
- Employee benefits from the two companies are roughly the same.
- He says he "enjoyed the challenge" of learning EDS's Digital Workflow internal support processes.
- EDS's size and reach make it easier for Self and his group to "swap" support personnel.



BLAKE SELF SAYS he joined EDS in part because he "put a stake in the ground" a few years ago when he bought a farm.

SPENCER TIGHE

Ulfelder is a freelance technology writer in Southboro, Mass. Contact him at [sulfelder@yahoo.com](mailto:sulfelder@yahoo.com).



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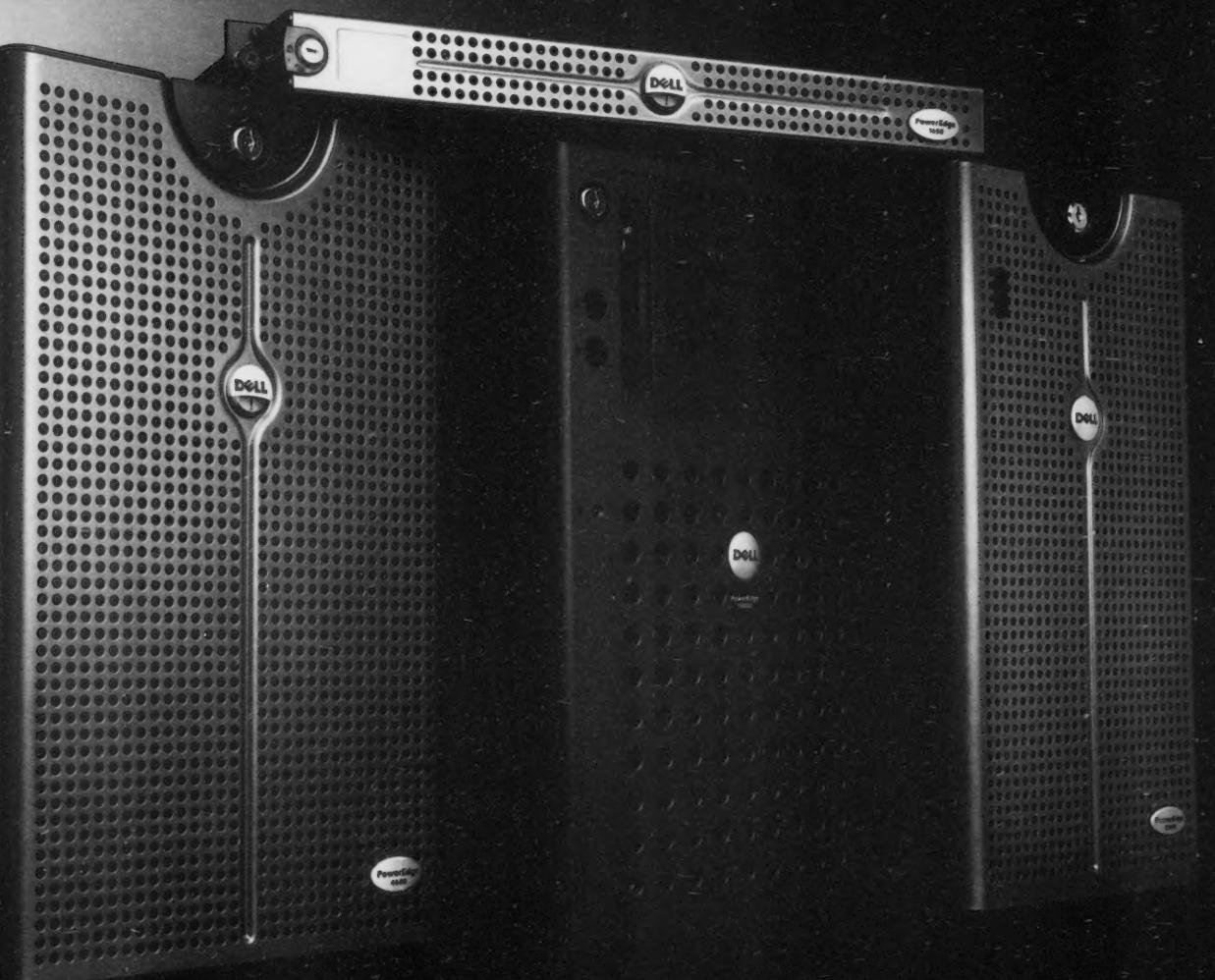
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# Chain Reactions

Some companies are making money back on their supply chain software investments despite doubts about e-business. By Marc L. Songini

**L**OKEED MARTIN AERONAUTICS Co. is looking to cut costs and hit its deadlines on the multibillion-dollar Joint Strike Force (JSF) contract. To that end, the Fort Worth, Texas-based company is upgrading its design systems so it can more efficiently share complete supply chain information with its subcontractors and key business partners.

Like Lockheed Aeronautics, a growing number of firms are pushing hard to ensure that they're able to maximize the return on their supply chain management (SCM) software investments, in light of the down economy.

Given the current skepticism about the dollar value of e-business, IT procurement managers have to think twice before ponying up the cash for expensive and tough-to-install SCM systems. "Can you save money with SCM systems? The answer is maybe," says Joshua Greenbaum, an analyst at Daly City, Calif.-based Enterprise Applications Consulting. Certainly, the potential for generating returns on SCM software is there, Greenbaum says, noting that SCM process improvements alone can help lower the cost of inventory management.

## Measuring Payback

Still, calculating the return on investment for SCM implementations can be a challenge. For instance, companies installing new systems and processes may not know how to figure out the payback without some sort of historical baseline to use, says Greenbaum. On the flip side, SCM failures that cost a company millions of dollars

can be much easier to measure.

Take, for example, athletic apparel maker Nike Inc., which last year announced major inventory problems connected with the rollout of a heavily customized SCM system that included modules from Dallas-based i2 Technologies Inc. [Page One, March 5, 2001].

At the time, officials at the company blamed software glitches — combined with soft sales — for diluted earnings per share of 35 cents for the third quarter of 2001, down from the 50 to 55 cents per share the company had been projecting.

## Shortening the Chain

COMPANY	ACTION TAKEN
<b>Lockheed Martin Aeronautics</b>	Is upgrading its CAD systems to allow it to more efficiently share complete supply chain information with subcontractors and key business partners.
<b>American Eagle Outfitters</b>	Rolled out a distribution application and saw in the first year a \$600,000 reduction in manpower costs. The system has sped up material handling and optimized the allocation of products shipped to its 640 stores.
<b>Maui Jim</b>	Is using a transportation application that has slashed manpower costs and cut shipping times by reducing errors that slow down distribution, saving \$40,000 over two years.

For its part, Lockheed Aeronautics is upgrading its product life-cycle management systems, which will help departments and suppliers at the company easily share vital information and product design. That, in turn, should lead to improved efficiencies and shortened production lead times.

As part of this effort, Lockheed Aeronautics is upgrading its Catia V4 computer-aided design (CAD) application from Dassault Systemes SA to Catia V5. This will permit the company to share data quickly and easily in a digital format throughout its supply chain, says Mark Johnston, manager of CAD development and support for the JSF project at Lockheed Aeronautics.

Without offering specifics, Johnston says the investment in the Catia upgrade is substantial and that he's confident ROI will be achieved quickly.

## Moneymaking Modules

Other companies are hitting their own pay dirt with SCM. Specialty apparel retailer American Eagle Outfitters Inc. saw in the first year a reduction of \$600,000 in manpower costs after the company rolled out the Pick Ticket Management System (PkMS) application from Atlanta-based Manhattan Associates Inc.

The Warrendale, Pa.-based retailer went live with PkMS in March 2000 to automate a distribution center and is planning to upgrade the system in July, according to Steve Lyman, director of distribution at American Eagle. The application has sped up material handling and optimized the allocation of products shipped to its 640 stores.

Among other benefits, the company was able to cut its inventory turn time from three days to two, thus decreasing the cost of managing and storing its inventory.

Another Manhattan Associates customer — sunglass maker Maui Jim Inc. — saw about \$40,000 in savings over two years using the vendor's Logistics PRO transportation application. Because the initial cost of the IBM AS/400-based system was between \$30,000 and \$50,000, ROI has

probably already been achieved, says Chris Bessert, traffic supervisor at Peoria, Ill.-based Maui Jim.

The software has saved the company manpower costs and cut shipping times by reducing errors that slow distribution. For instance, the software will ensure that customer address changes are automatically replicated throughout the system.

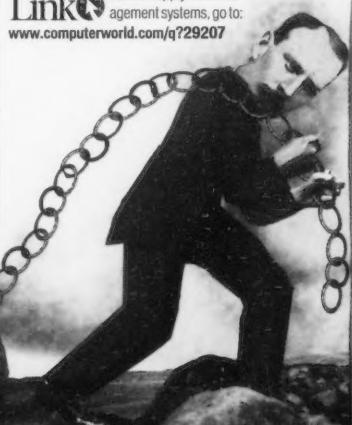
Not every supply chain application requires a hefty upfront investment. Modern Plastics Technology LLC, an injection mold maker in Port Huron, Mich., spends just several hundred dollars per month to access a supply chain application from SupplySolution Inc. in Southfield, Mich.

The company had been using electronic data interchange feeds to fill its orders and was having a tough time keeping up with unscheduled changes in orders, says Doug Archer, vice president of Modern Plastics.

Then a sealant maker approached Modern Plastics and persuaded it to connect with its SupplySolution I-Supply Services application, which allows Modern Plastics to see what the customer needs on a real-time basis. The customer maintains the server and application. As a result, "that information is well worth what we have to pay" to access the software, says Archer. ▶

## Quick Link

For more information about ROI on supply chain management systems, go to: [www.computerworld.com/q?29207](http://www.computerworld.com/q?29207)





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- ② That placed the Order
- ③ That went through the Dealer
- ④ That notified Contracts
- ⑤ That alerted Manufacturing
- ⑥ That checked with Accounting
- ⑦ That contacted Shipping
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American IT workers living abroad have had to struggle with isolation and security concerns following the Sept. 11 attacks. By Todd R. Weiss

**T**HREE MONTHS AFTER THE Sept. 11 attacks, Douglas Brown, director of consulting in Asia at Computer Sciences Corp., was feeling uneasy.

But after work, as Brown makes his way around Kuala Lumpur, Malaysia, where he's stationed, an uneasy feeling still keeps him on guard, "like the other shoe has not dropped perhaps."

Indeed, it's been much harder being an American IT worker in another land since that horrific September day, say Brown and others who work and live far from the states.

Now more than ever, American workers residing in foreign countries have to remain vigilant about their surroundings and any potential threats, while being careful not to dress or act like Yankees. They need to keep others abreast of their whereabouts and use extra caution as they travel and spend time in public places.

Brown says he continues to take precautions, such as taking a different route to work each day, in case he's being targeted as an American. But worries remain.

"The feeling moving around the city has fundamentally changed," he says. "You always have this uneasiness" as you travel on the streets, even when you are walking around. "You also walk with a sense of purpose and direction."

At work, there are other changes, too. "Most of the work in Asia is extremely relationship-based," with many social activities with clients, Brown says. But since the attacks on New York and Washington, "that kind of time spent in those situations has dropped a lot" be-

LIKE MANY U.S. citizens working abroad, Computer Sciences' Douglas Brown, in Kuala Lumpur, is feeling uneasy.

# Post 9-11: The View From



TAN CHANG/SHUTTERSTOCK

# BUSINESS CAREERS

cause business associates worry about taking Americans to public places where they could be at risk, he says. "They're trying to look out for you and not put you in a situation where you feel uncomfortable."

Another post-Sept. 11 change is more subtle. Before heading out for an appointment or a business trip, Brown finds himself making a quick call to let someone know where he is and where he's heading — just to be on the safe side.

He says he tried to remain as outgoing as he was before the attacks because the alternative is to be afraid. "And to be afraid is to let those who do such horror achieve their goals," he says. "The challenge in this new world is that nothing is sacred, and the amount of time one feels the need to be in heightened awareness is practically constant."

The friendships Brown has made abroad have been strengthened since the attacks, as people have pulled together and look out for one another. "We go to places which will maintain the adventure of living in another country while minimizing the potential for discomfort on either side," he says.

## Brave New World

Such anxiety has become widespread for American workers in overseas postings. Barry Kozloff, president of Selection Research International Inc., a St. Louis-based firm that evaluates workers for suitability for international jobs, says the combination of the attacks and the sluggish economy have markedly slowed the number of Americans in all fields going abroad to work.

"There's a lot of concern about sending Americans to work in the Middle East, even more than before," Kozloff says. "You have to look at it region by region."

John Walsh III, director of service delivery in Europe for Computer Sciences' chemical industry group in Bad Homburg, Germany, says office security was increased immediately after the attacks. Several building entrances were closed as a precaution to better control who goes in and out, and several guards were added. The company also made workers aware of several anthrax scares that ended up being false alarms.

As a former intelligence worker at the U.S. Defense Department, Walsh says he's taken more personal precautions as well, including avoiding speaking English in public.

When he and his family are in their home outside

## Staying Safe

Here's a checklist for American workers abroad:

**Always remain aware of your surroundings and avoid unusual circumstances.**

**Walk with authority and purpose when in public areas.**

**Call ahead to notify others of your travel plans or appointments.**

**Alternate your routes to work on a regular basis.**

**Avoid wearing American flag pins or other insignia in public.**

**Speak in the native language where you're working.**

Frankfurt, they feel very secure, he says. "Probably when we feel most unsafe is when we're at a large American icon like McDonald's or at the airport."

Right after the attacks, Computer Sciences called its overseas workers and offered to fly them and their families home to the U.S. as soon as possible if they wanted, Walsh says. Only one temporary worker took the offer. Walsh has about three Americans working for him out of some 400 people in eight European nations.

There have been outreach efforts by the U.S. Embassy, which has answered questions and given comforting support, he says. On Sept. 12, Walsh had satellite television installed in his home so he and his family could stay abreast of what was happening back home.

So would he feel uncomfortable bringing any new American IT workers overseas now?

"Not particularly," Walsh says, "as long as those people would feel comfortable working overseas."

On a recent trip back to the states, he says, he was heartened by the "rejuvenated pride in America" he witnessed. "I think it makes you proud to be an American seeing everyone pulling together at a time like this."

Toby Weiss, a senior vice president in Tokyo for Islandia, N.Y.-based Computer Associates International Inc., says that in the past, companies in Japan and Korea frequently sent workers to the U.S. to get technical

expertise or to review trends. But companies have cut back dramatically on those trips, he has noticed.

"The Sept. 11 tragedy caused a slowdown in companies willing to travel to the U.S.," Weiss says. "It's starting to pick up a little bit more now."

What's more, some of CA's foreign IT employees who were working in the U.S. at the time of the attacks "had a sense of uneasiness" that the company had to help them work through, he says. CA did this by providing security information and updates through the company's global security department.

As for being an American in Japan, Weiss says he now has a "much more heightened sense of what's going on, but really I'm not overly preoccupied" with concern. "My sense of worry has increased a little, but my sense of awareness has increased tremendously."

Eric Peffer, a delivery mobilization manager at Computer Sciences in Jakarta, Indonesia, says his everyday work routines haven't changed. But like others, he remains constantly on alert for potential safety problems.

Right after the Sept. 11 attacks, some of Peffer's American co-workers were temporarily evacuated, but things soon returned to business as usual, he says.

In his work travels in Indonesia, Malaysia and Singapore since the terrorist attacks, he says, he has received warm support from locals, most of whom are Muslims. "The Muslim citizens are constantly reinforcing the fact that the attacks are not representative of the behavior of a 'true' Muslim supports," Peffer says. "They emphasize that the attacks are against all the beliefs of the Muslim religion and were carried out by radicals."

Irene Dec, vice president of international operating management at Newark, N.J.-based Prudential Financial and a regular traveler to London, Asia and Central America, says her company's in-house security staff has done much to alleviate her worries by keeping traveling workers constantly up to date on any problems.

Immediately after the attacks, only business-critical travel was permitted by the company for about three weeks, but that restriction was lifted in October. Prudential has about five Americans abroad in IT within her division, she says.

Says Dec, "They're really doing studies out there to tell us if we're at risk." ▀

# from Abroad



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COMMUNICATION WITHOUT BOUNDARIES

KATHLEEN MELYMUKA/DIVERSITY

## Priming Inner-City Talent as Helmsmen

**I**N HONOR OF SPRING, I found some good news on the diversity front in a small but promising program in Chicago called i.c.stars, which stands for inner-city stars. i.c.stars is helping talented young people develop their IT skills and move into the leadership pipeline in area businesses. Its operating principle is that the best IT skills come not from books or even teachers but from on-the-job learning.

Here's how it works: i.c.stars uses a broad network of community contacts to scour inner-city Chicago for promising young people. This isn't a program to transform the lives of losers; the young folks recruited have already demonstrated that they have what it takes to be winners. They show a strong proclivity for IT, leadership and business.

"They might not have done well in a traditional school environment, but they've succeeded in other ways," says Sandee Kastrul, co-founder of i.c.stars and vice president of training and development.

For example, Kevin Gates is a 20-year-old African-American who was on his way to becoming a chef last year when i.c.stars showed him that he could do more.

"I entered the program at a time in my life when I knew I had a lot of unused potential mentally, but also vocationally," he says. "I was working as a line cook at the House of Blues, reading HTML books while I worked because I knew I could be successful at it."

The program picks 10 students for each 16-week session. The first few weeks are devoted to learning basic business and team-building skills. Then the fun begins. The interns, as they're called, are divided into three teams, based on their individual strengths.

For the next three months, the team participates in three increasingly complex business simulations. Team members receive and respond

to requests for proposals, meet with prospective customers, build demos and prototypes and deal with fickle customers and "scope creep," just as they would in a real-life project situation.

Businesspeople from the Chicago community play the customer roles, and the scenarios build in the kinds of difficulties that drive real project teams crazy — such as eleventh-hour requirement changes. "They work 10- and 12-hour days," says Kastrul. "And if they have to pull an all-nighter to make a deadline, they do it."

### Survival Skills

The projects teach not only the skills necessary to excel in an IT environment, but also the attitude essential to survive.

The teams are designed to help each member strengthen his weaker areas. The IT expert might be put in the position of project manager, for example, to build her leadership skills, while the natural leader might be required to do the programming.

Each evening, one-on-one mentoring sessions enable interns to get help from business volunteers on particular skills they need to build. It's also an opportunity for interns to make contacts that can later grow into job leads.

Late each afternoon, there's a break during which an area businessperson gives a presentation on anything from C++ to finance. "It's basically the only lecture time in the

whole program," Kastrul says. The interns get a miniseminar and a glimpse of life on the front lines of Chicago businesses, and they also make additional connections in the business community.

At the same time, the presenters get a feel for the quality of the interns. "People are very impressed," says Kastrul. "They leave different than they came in."

Put it all together, and you've got a package that turns self-starters into lifelong learners. "They teach you how to teach yourself," says graduate Yolanda Johnson, 23. "I was able to not only build on the skills that I already possessed, but also acquire skills to help me to succeed in a very competitive field."

When the 16-week session ends, interns are expected to have developed the contacts they need to find good jobs in the area. Johnson, for example, landed a position as a developer at CNA Financial Corp. Gates found a job at Microsoft Corp.

The i.c.stars alumni association provides continuing personal support, and the program works with employers to make sure its graduates receive the career development opportunities they need to move through the leadership pipeline. Gates, for example, is a technology specialist working toward a Microsoft Certified Solution Developer certification, and he hopes to start studying soon for a computer science degree.

Though only three classes have graduated so far, a new session is about to begin, and i.c.stars is already seen as a model.

Mayor Richard M. Daley has said the program will "help ensure that Chicago's high-tech community can develop homegrown talent as well as connect inner-city youth to future opportunities in the technology industry."

i.c.stars gives young people the tools to build a successful future. "It's like the old saying," Johnson says. "Give a man a fish, and he eats for a day. Teach a man how to fish, and he eats for a lifetime." ▶



KATHLEEN MELYMUKA is a Computerworld feature writer. Contact her at [kathleen.melymuka@computerworld.com](mailto:kathleen.melymuka@computerworld.com).

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# “Dear Career Adviser:

*I have been in networking for more than seven years. Even with Novell, Microsoft and Cisco certifications under my belt, I can't predict what technologies to learn to keep me up to date.*

*I am working on IPsec, Generic Routing Encapsulation and Digital Subscriber Line technologies in the WAN/LAN security space and want to know how much time to spend getting skills in the new products that come out each year. Are there new certifications in the networking and security areas that are valuable from a career perspective?*

— KNOWLEDGEABLE IN KNOXVILLE

## Dear Knowledgeable:

Stepping away from the desktop to issues involving the standards and the security of

the Internet will both raise your salary and show that you can solve more complex problems, says Richard Threadgill, co-founder of Ponte Communications Inc., a network security control software company in Mountain View, Calif. Making applications run more efficiently generally pays better than taking care of application users. Companies understand that providing remote access to employees and doing business with their partners over the Internet requires that they pay attention to their computing infrastructures, systems and networks.

Certifications, particularly from Cisco Systems Inc., are still valuable in this competitive job market, says Threadgill, as is a deep understanding of networking and security fundamentals. You need to know how to handle basic security, reliability and performance issues, as well as how to correctly diagnose and handle complex questions.

Be prepared to tell a prospective employer how you built four things that mattered in your current position, both in technical terms and as a business proposition, suggests Threadgill.

## Dear Career Adviser:

*I am a data modeler. My responsibilities have included reviewing business requirements and preparing logical and physical models using the Erwin modeling tool. I ensure that the proper normalization rules and data rules are followed. I also convert the physical model into Data Definition Language for the generation of tables by the database administrator.*

*My prior experience has included mainframe Cobol/DB2 programming, project management, one year as a systems engineer and one year as a DB2 database administrator. I am job hunting and am finding this to be a difficult market. To enhance my position, should I obtain an Oracle database administrator certification or pur-*

*sue any other training?*

— JOB-HUNTING DATA MODELER

## Dear Data Modeler:

You're correctly reading today's job market by emphasizing the technical side, says Virendra Vase, CIO and vice president of engineering at Responsys Inc., a Web analytics firm in Palo Alto, Calif.

You can further improve your opportunities with training related to data warehousing and Very Large Database technologies.

Oracle certification, plus training in Web servers and architecture, and in products from Cupertino, Calif.-based Rational Software Corp., are also good skills to have, says Jennifer Rye, director of recruiting at CDI Professional Services in Troy, Mich. ▀



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## WORKSTYLES

# There's Lots to Learn At GlaxoSmithKline

*Bill Louv, senior vice president of U.S. pharmaceuticals IT at GlaxoSmithKline PLC (GSK), describes an IT culture at the global pharmaceutical company that's marked by opportunities to learn new skills.*

**What are the most critical systems that are supported by your department?** "We support the financial systems; the revenue cycle systems, such as order processing, contract management and distribution management; the commercial data warehouse; and the sales force automation system for our 8,000 sales reps, as well as [customer relationship management] components,

like the call center."

**How would you describe the pace of the work?** "It is challenging and invigorating but not pathologically hectic."

**Describe some of the challenges.** "Over the last year or so, we've become much more value-conscious. It used to be that there was a queue of requests and we'd just work on what's in the queue. Now we're more disciplined about setting priorities — we collaborate with our business partners to pick the highest-value project."

**How does the change affect IT staffers' work?** "Each of my direct reports is a full mem-

ber of a business management team, so they understand the business very well and have developed a very good sense of where they can add value."

**Do IT workers learn a lot about medicine?** "I was in R&D for a long time, and I got the chance to learn a lot about basic pharmacology and clinical trials. Now that I'm on the commercial side, I'm learning about sales and marketing."

**How would you describe the IT culture?** "It's action-oriented, with a generally strong work ethic."

**What do you mean by "action-oriented"?** "It means that people want to solve problems. If we're launching a new product and the project manager needs new ways to explain to doctors the benefits of a drug, we'll find technology to solve that problem."

**What are some benefits that an IT professional could get only at GSK?** "If you have a prescription for a drug that GSK makes, you get it for free. But you also get the benefits of working in an industry whose mission is really positive, and there are a lot of learning opportunities, not just in technology but also in medicine and health care."

**What do you love about coming to work?** "There isn't a day that I don't learn something new. It's not a routine job."

**What do you dread about coming to work?** "Our merger [of Glaxo Wellcome and SmithKline Beecham PLC] is a year and a quarter old. It's been very successful, but there are small pockets of people who still look backward, and that's very frustrating to deal with."

— Mary Brandel  
[brandel@attbi.com](mailto:brandel@attbi.com)

**GlaxoSmithKline PLC**

**Who they are:** A research-oriented pharmaceutical and health care firm

**Main U.S. location:** Research Triangle Park, N.C.

**Interviewee:** Bill Louv, senior vice president of U.S. pharmaceuticals IT

**Number of IT employees:** 500 in U.S. pharmaceuticals IT group

# TECHNOLOGY

## THIS WEEK ACCESS CONTROL

Provisioning technologies automatically set up new user accounts and block employees from tools after they leave or no longer need them. The result is increased productivity and security, but deployment can be a nightmare. **PAGE 42**

## HANDS ON

Installing Windows XP can be a game of chance, because legacy software can cause interoperability headaches and require unexpected upgrades for hardware and software. **PAGE 44**



## MANAGING MESSAGES

As messaging becomes a primary form of business communication, users have found add-on applications that help manage and organize their message stores. **PAGE 46**

## QUICKSTUDY

The Windows registry is a database that stores configuration information for the operating system and the applications that run on it. Learn more in this primer. **PAGE 50**

## SECURITY JOURNAL

After finding that users are spending hours per day at porn Web sites, Mathias Thurman considers whether to find the perpetrators or filter traffic — and finds the latter more politically correct. **PAGE 52**

NICHOLAS PETRELEY

## Desktop Linux at Last?

I KICKED THE WINDOWS HABIT BACK IN 1997 and have since been using Linux exclusively as my productivity desktop operating system. Yes, I know I'm in the minority. But while you understandably nodded off some years ago while waiting for Linux to conquer the desktop, you probably don't want to snooze much longer, or you could wake up to a whole different world. So many significant events are converging so quickly that I'm tempted to concoct a conspiracy theory to explain the coincidence.

It all started when Ximian shipped Evolution 1.0 in December. Evolution is basically an open-source Microsoft Outlook — more so now that Ximian is offering a Microsoft Exchange connector for Evolution that makes the transition from Outlook to Evolution almost completely painless.

Then K Desktop Environment (KDE) 3.0 shipped on April 3 ([www.kde.org](http://www.kde.org)). KDE brought the Linux desktop out of the Dark Ages last year when it exploited the font anti-aliasing features of Qt, Trolltech Inc.'s user interface tool kit ([www.trolltech.com](http://www.trolltech.com)). Most of the changes in KDE 3.0 are under the hood, but you'd definitely notice the translucent menus, usability enhancements to the Konqueror Web and file browser, bug fixes galore, and much more.

Man does not live by desktop alone, however. Fortunately, we're very close to the first official release of OpenOffice and StarOffice. As you probably know, StarOffice used to be Sun's free productivity suite alternative to Microsoft Office. Thanks to the sluggish economy, it looks like Sun will charge hard cash for StarOffice. I don't have a problem with that decision, personally. But those who do can always download OpenOffice instead. OpenOffice is practically the same suite as StarOffice, but it's free.

Nevertheless, you get a lot with OpenOffice. I've been using it to write this column for the past couple of months now. The release candidate, which shipped April 4, has a truckload of features I'll never use. Although it has crashed a couple of times, I've yet to lose a single word of my work. Best of all, it loads the same day I click on the icon. (Earlier versions of StarOffice and OpenOffice were notoriously slow starters.)

Speaking of slow starters, remember Mozilla? For a while there, Mozilla was the laughingstock of open-source projects. Back in 1998, many of us expected Mozilla

to overtake Internet Explorer within a year, perhaps two. But when 2000 came, the Mozilla road map still looked like it charted the territory from here to eternity. Well, at long last, Mozilla 1.0 is nearly ready to go. I'm using Mozilla 0.9.9, but the first release candidate is already circulating.

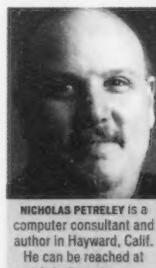
Mozilla is one of the most misunderstood projects ever undertaken. On the surface, it looks like the same basic browser, e-mail, address book and composer combination we know from the Netscape 4.x series. Others know Mozilla for its HTML rendering engine component, called Gecko, which plugs into applications like the Nautilus file manager and Galeon browser.

Unless you're a Mozilla user, however, you may not know that its user interface is driven by XML files, which means you can make Mozilla look and behave virtually any way you like.

The jury is out as to whether Mozilla's ingenious customizable user interface design will excuse Mozilla from the criticism heaped upon it. If not, it's still one killer browser suite. I've used it almost exclusively ever since developers added the tabbed multiple-document interface to let you browse several sites within a single window frame. Mozilla's e-mail client is also quite an achievement. It's second only to Evolution in terms of power and usability.

If you can't get the Microsoft Office monkey off your back anytime soon, CodeWeavers Inc. has a way you can still move to Linux on the desktop. It's called CrossOver Office, and it lets you run Microsoft Office directly on Linux, which saves you the cost of a Windows license for every desktop.

And that brings me to the imminent release that's most likely to motivate people to abandon Windows for Linux on the desktop: Microsoft Licensing 6.0, which is due out in August. ▶



NICHOLAS PETRELEY IS A computer consultant and author in Hayward, Calif. He can be reached at [nicholas@petreley.com](mailto:nicholas@petreley.com).

**I**F YOU'RE PONDERING ELECTRONIC provisioning, think single sign-on all over again. Like its predecessor, e-provisioning is saddled with all the same integration and complexity problems that kept single sign-on from becoming the killer application many industry observers thought it would be.

The definition of e-provisioning varies depending on which vendor you talk to, but basically, e-provisioning tools mediate among human resources systems, directory services and network resources to automatically set up new user accounts into the applications that employees need to do their jobs. Inversely, these tools also automate de-provisioning by removing user accounts from the system when employees leave or no longer need those resources.

Vendors claim that their products provision users to all the resources they need across the enterprise, which is possible in simple cases such as that of Burlington Northern Santa Fe Corp. (BNSF) in Fort Worth, Texas. BNSF automated add/delete/change functions to three commercial platforms using Lighthouse from Austin, Texas-based Waveset Technologies Inc.

But automating provisioning across all applications, particularly in complex enterprises, isn't possible, say analysts and users. About the best that companies can hope for is 20% to 55% coverage, they say. "No vendors cover 100% of the applications or systems that exist in an enterprise. So the question becomes, How much coverage can you get?" says Mike Hager, vice president of network security and disaster recovery at OppenheimerFunds Distributor Inc. in New York.

Hager did what many early adopters are doing: He scaled his provisioning requirements down and started with his top two platforms, Windows NT and Novell Inc.'s GroupWise. Even then, his team ran into integration problems between the applications and his provisioning tool, enRole from Access360 in Irvine, Calif. Furthermore, Hager says, it will probably take another two years to develop the connectors

## Ask the RIGHT QUESTIONS

*Mike Hager, vice president of network security and disaster recovery at OppenheimerFunds, says companies that are considering provisioning should ask the following workflow evaluation questions:*

**Which applications require user account setup?**

**Where are users going and what are they accessing?**

**What are the group structures and roles in the platforms and applications that I want to tie into the provisioning infrastructure?**

**How many user accounts and passwords do I have, and in what structure are they sent?**

**Who or what controls those accounts and passwords?**

to provision to the rest of his target applications.

"Even if you can address 80% of your needs, you still have to do the rest of the provisioning by hand, which was the same weakness in single sign-on," explains John Pescatore, an analyst at Gartner Inc. in Stamford, Conn.

But early adopters say they're willing to pay this price for what they see as an inevitable return on investment. Hager, for example, has already reduced his maintenance staff from seven employees to three.

And users say that by starting now, they're also laying the foundation for future applications that will safely allow business partners and customers into their networks.

### Dangerous Orphans

One primary driver for undertaking unwieldy provisioning projects is the security risk posed by orphaned accounts left behind when employees leave or change job functions. With manual add/delete/change processes, inactive user accounts could get lost in hundreds of applications across the enterprise.

Hackers love these orphaned accounts because they can use them to access applications. By guessing passwords for such accounts, a hacker was able to burrow into personnel and freelance databases at *The New York Times* in February.

With a highly cyclical workforce and a large amount of intellectual property to protect, the risk posed by orphan accounts prompted the board of directors at Santa Clara, Calif.-based Applied Materials Inc. last year to call for an auditable access removal trial within 24 hours of employee termination.

"We used to do this in a pretty ad hoc manner. HR would blast out an e-mail to a distribution list of 25 administrators or more, depending on the globality of the worker," says Craig Haught, managing director of enterprise network solutions at the \$7.3 billion semiconductor services company. "There was no accountability for shutting down these accounts."

Within six months, Haught was able to provide the board with an auditable de-provisioning trial using enRole. Human resources can now terminate an employee in Applied's PeopleSoft Inc. database, which creates a transaction that's transmitted to enRole, which then turns off the employee record across the applications and platforms to which the employee had access.

But it took a painful six months to get to that point, says Haught. The task required a new common naming convention for all users, which the tool didn't automate. The tool also didn't help Haught's team locate existing orphaned accounts. "That took a lot of

# CONTROLLED Access

Companies are eyeing the automatic setup of new user accounts through provisioning technologies. But deployment roadblocks await. **BY DEBORAH RADCLIFF**

# TECHNOLOGY

eyeballing from system administrators," Haught says.

Finally, after manually loading the new user information into an Access360 database, Haught's team ran into performance problems with Access360 agents that sit on the provisioned applications. Four of these agents had to be completely rewritten in order to scale to the demands of Applied's 25,000 database users. "The bad news is, Access360 was not enterprise-ready. But the good news is, they fixed it all," says Haught.

## Integrator's Nightmare

But agents aren't the most vexing problem with provisioning technologies. Neither is scaling these technologies to thousands of users and groups. The big problem is scope, says Matt Merchant, chief architect at a large East Coast financial services firm.

"It's easy for these tools to scale up, because there's not a lot of interaction once you've provisioned a person into a resource," he says. "What these tools can't do is grow in scope very easily. Scope would be any application or platform that a user could potentially touch to do their jobs."

This is what prompted Merchant to select Xellate, a little-known provisioning platform from New York-based Thor Technologies Inc., for provisioning 10,000 users to a new homegrown sales database with five separate log-in points.

"What we really liked about Thor is their Adapter Factory. That's their secret sauce that let us code our connectors to our new database applications, which was trivial to do," Merchant says. The system also learns the provisioning process by copying the way it's done manually by the administrator, he says.

But Merchant's experience represents the exception rather than the norm. Most users are turning to vendor-provided consulting services to make their integrations work.

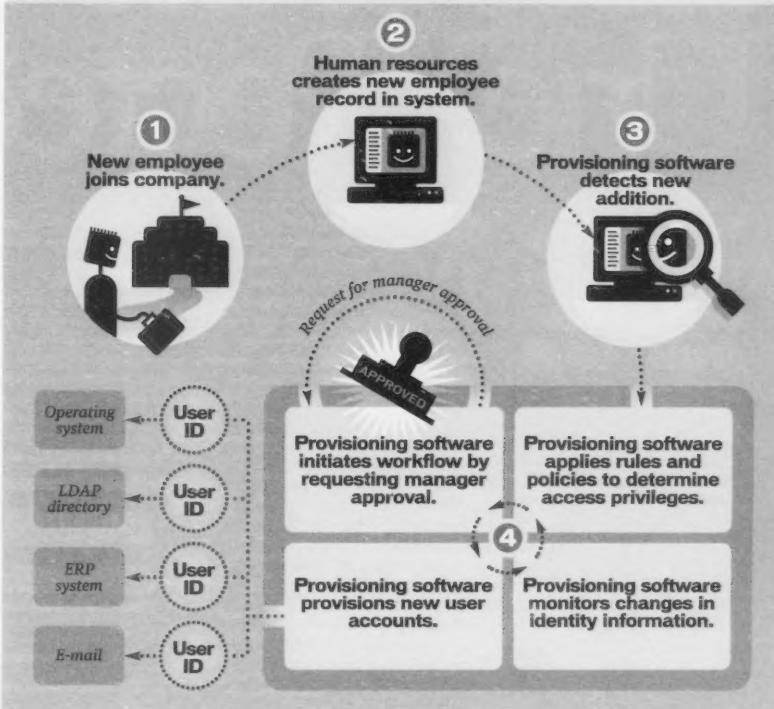
For example, Hartford Public Schools in Connecticut, which has just two systems administrators for 26,000 students and teachers, wasn't able to build connectors with Novell's DirXML to automate importing user information out of two proprietary databases and into Novell's eDirectory, says Brian Waitz, senior systems administrator for the district. Coop Switzerland, the second-largest retailer in its home country, also didn't have DirXML programming skills in-house when it tried to integrate 7,800 of its 45,000 users into an electronic telephone directory and attempted to provision NetWare users to file and print sharing.

Both organizations called on Novell Consulting Services to do the integration. Novell had the right levels of expertise with both the business process and the technology, say Waitz and Patrick Stamm, team leader of server infrastructure at Basel, Switzerland-based Coop.

"Novell saved a lot of trouble by prompting me to work out the provisioning process with the human resources department before we rolled out," says Stamm.

Like Coop and Hartford Public Schools, most large enterprises have homegrown applications, and that's where most products fail to deliver even rudimentary provisioning without a lot of custom middleware — as was the case with single sign-on, according to Pescatore and users of that technology. Even with vendor-provided tool kits, users report timelines of two months to create and integrate such a connector to a

## AUTOMATED User Provisioning



single application, making it an untenable development process if businesses don't set some priorities.

"You've got to concentrate on those applications where you'll get the most bang for your buck," says Dave Everett, a systems architect at ChevronTexaco Corp. in San Francisco. "You don't want to provision more than three or four platforms and applications."

So when ChevronTexaco began its provisioning integration project in March last year, Everett's team first tackled integration into Microsoft Corp. Active Directory log-in accounts and Exchange 2000 mailboxes, which he calls "provisioning hubs." Everett's team installed eProvisioning Day One from Business Layers in Rochelle Park, N.J., for its role- and Web-based capabilities to meet ChevronTexaco's long-term objective of opening the network to business partners, he explains.

But after all the integration work was done, problems started as the project was ready to go live with 100 test users last month. ChevronTexaco revised its standard Microsoft server configurations, which caused the SQL installation of the Business Layers product to stop working. The product also clashed with the Microsoft message-queuing functions.

"This is the same with all the old single sign-on vendors. If applications changed, single sign-on didn't work; same with provisioning," says Pescatore. He adds that some of these compatibility problems should ease as vendors move to more standards-based provisioning, particularly with the Service Provisioning Markup Language in development by the World Wide Web Consortium.

It also helps to have either a webified or a simplified environment like that at BNSF, which built in minimal provisioning functionality (add/delete/change/view) around its existing workflow model. It took BNSF's team only four months to integrate Waveset's Lighthouse provisioning product with its IBM mainframe and its Windows NT and IBM AIX systems, says Rick Perry, director of enterprise operations and security at BNSF.

"My advice: Get some standards and simplify your environment," he says. "If you provision to a mess, automating it won't help you much."

### Quick Link

Companies like Baptist Healthcare System have found that they need to take a close look at their processes and workflow before they begin provisioning projects. Learn more at [www.computerworld.com/q?28981](http://www.computerworld.com/q?28981)

# Tales of the UneXpected

**This Windows XP installation was full of surprises – not all of them nice.**  
By Robert L. Mitchell

MOST KNOWLEDGE workers have PCs at home, and it's likely that they do some company business on them, even if it's only checking e-mail. Or perhaps they take a laptop home evenings and weekends, and they might install other software for occasional use by family members, with or without permission. But what operating systems are running on these machines? And why should IT care?

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But XP still represents a big leap away from Windows 9x, and, as I dis-

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Educational software won't run without admin privileges	Purchase latest version	\$19.95
<b>Total hardware and software cost</b>		<b>\$826.38</b>
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## HOW TO PLAY THE GAME



# TECHNOLOGY HANDS ON

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## LINKS TO HELP PAGES

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### CANON U.S.A. INC., Lake Success, N.Y.

<http://consumer.usa.canon.com/index.shtml>  
First download:

- [http://consumer.usa.canon.com/techsupport/faq/xp\\_scanner.html](http://consumer.usa.canon.com/techsupport/faq/xp_scanner.html)

Second download:

- <http://209.85.7.18/techsupport.php?q=download&p=csfb620p>

### RIVERDEEP-THE LEARNING CO., Novato, Calif.

[www.learningcompany.com/](http://www.learningcompany.com/)  
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### MICROSOFT CORP.

[www.microsoft.com](http://www.microsoft.com)  
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### ROXIO INC., Santa Clara, Calif.

[www.roxio.com](http://www.roxio.com)  
Easy CD Creator 5  
Roxio products and Windows XP page:

- [www.roxio.com/en/support/roxio\\_support/roxio\\_xp\\_sup\\_notes.html](http://www.roxio.com/en/support/roxio_support/roxio_xp_sup_notes.html)

### YAMAHA ELECTRONICS CORP., Buena Park, Calif.

[www.yamaha.com](http://www.yamaha.com)  
CD-RW service and support page:  
■ [www.yamaha.com/yaservice/group001/fgroup001.htm](http://www.yamaha.com/yaservice/group001/fgroup001.htm)

## The Bottom Line

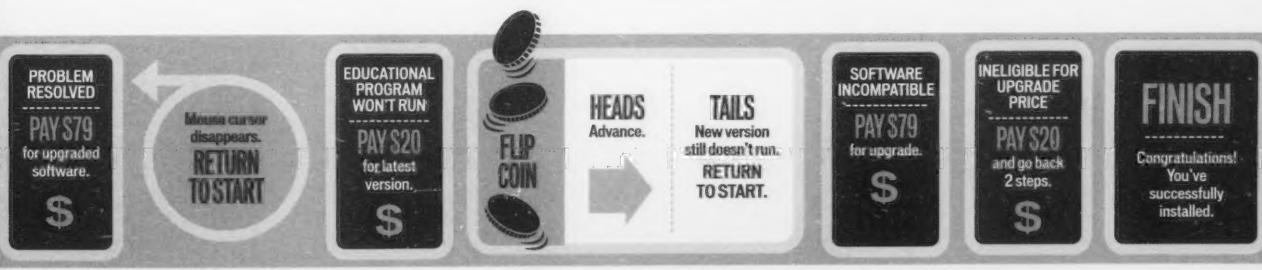
Now that I've shaken out all of these upgrade issues, the system is much more stable than it ever was with Windows 98.

But if your experience is anything like mine, you may spend 20 hours or more over several weeks tinkering with hardware and software issues, making phone calls — and buying upgrades — before everything runs smoothly. And I could have bought a new computer for the cost of all the upgrades.

So was upgrading to Windows XP worth it? Absolutely. And I'm sure that someday my family will agree. ▀



For more Windows XP news and analysis, visit our special coverage page:  
[www.computerworld.com/q/a1140](http://www.computerworld.com/q/a1140)



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GO TO VENDOR WEBSITE for new device driver.



**HEADS**  
New device driver doesn't help.  
**PAY \$99**  
for new hardware and go back 3 spaces.

**TAILS**  
Device driver solves problem.  
ADVANCE TO NEXT STEP.



**CALL TECH SUPPORT**  
Software won't install.



**HEADS**  
You pay for call.



**TAILS**  
You get free help and advice.

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**PROBLEM RESOLVED**  
PAY \$79  
for upgraded software.  
**\$**

Mouse cursor disappears.  
**RETURN TO START**

**EDUCATIONAL PROGRAM WON'T RUN**  
PAY \$20  
for latest version.  
**\$**



**HEADS**  
Advance.

**TAILS**  
New version  
still doesn't run.  
**RETURN TO START.**

**SOFTWARE INCOMPATIBLE**  
PAY \$79  
for upgrade.  
**\$**

**INELIGIBLE FOR UPGRADE PRICE**  
PAY \$20  
and go back  
2 steps.  
**\$**

**FINISH**  
Congratulations!  
You've  
successfully  
installed.

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Easy CD Creator 5  
Roxio products and Windows XP page:  
■ [http://www.roxio.com/en/support/roxio\\_support/roxio\\_xp\\_sup\\_notes.html](http://www.roxio.com/en/support/roxio_support/roxio_xp_sup_notes.html)

### YAMAHA ELECTRONICS CORP., Buena Park, Calif.

[www.yamaha.com](http://www.yamaha.com)  
CD-RW service and support page:  
■ <http://www.yamaha.com/caservice/group001/fgroup001.htm>

### The Bottom Line

Now that I've shaken out all of these upgrade issues, the system is much more stable than it ever was with Windows 98.

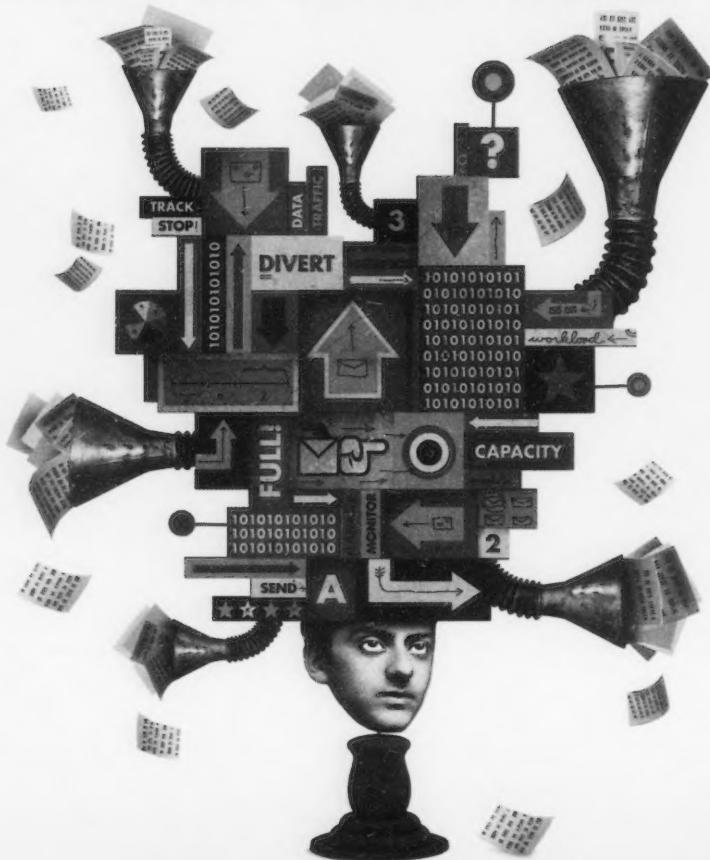
But if your experience is anything like mine, you may spend 20 hours or more over several weeks tinkering with hardware and software issues, making phone calls — and buying upgrades — before everything runs smoothly. And I could have bought a new computer for the cost of all the upgrades.

So was upgrading to Windows XP worth it? Absolutely. And I'm sure that someday my family will agree. ▀

**Quick Link**

For more Windows XP news and analysis, visit our special coverage page:  
[www.computerworld.com/q/all40](http://www.computerworld.com/q/all40)

# Minding the MESSAGING STORE



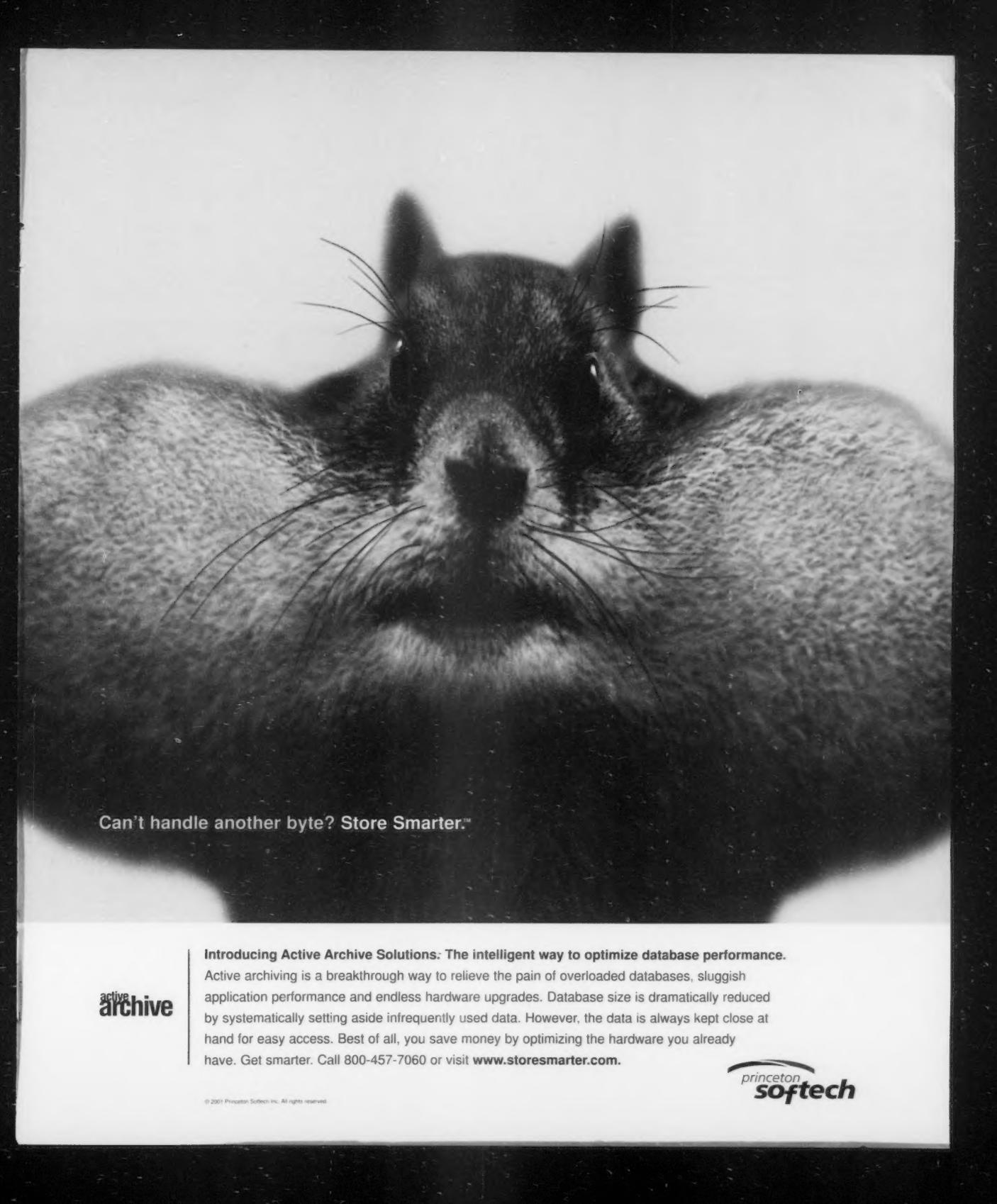
Users look to technologies that monitor and manage the flood of data created by messaging applications. By Jennifer DiSabatino

LAST SUMMER, an intern at Hewitt Associates LLC scanned the logs on the company's Domino servers at its headquarters in Lincolnshire, Ill. He looked to see who, if anyone, used each application and database that is replicated between servers. It took all summer to manually check the logs and delete unused items from the servers. The result: 63GB of storage space was freed up in the company's messaging database. This summer, the intern will be doing other things.

Since September, the outsourcing and consulting firm has been using analysis software from Wellesley, Mass.-based DYS Analytics Inc. It automatically monitors which messaging and collaboration applications — and how much of the 2TB of data associated with them — are being used on each of Hewitt's 180 Domino, Notes and QuickPlace servers in 80 offices in 37 countries. Notes and Domino are the principal groupware products from IBM subsidiary Lotus Software Group in Cambridge, Mass.

Regardless of whether the platform is Notes or Microsoft Corp.'s Exchange, e-mail and related collabora-

*Continued on page 48*



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*Continued from page 46*

rative applications such as instant messaging and Web meeting software are the primary medium for many business transactions. The problem is that the massive number of files produced by these applications eats up both bandwidth and storage. Without some kind of help, end users can't access information and companies can't meet legal requirements to save certain documents.

"It's important to evaluate your environment to find a tool that fits, instead of designing a process around a tool," says Mark Brooks, network project leader at Teachers Insurance and Annuity Association College Retirement Equities Fund (TIAA-CREF). "You have to define your process first; then you can go look for a tool."

One way TIAA-CREF is cleaning up traffic is by requiring users to send links instead of attachments in their messages, Brooks says. Building the technology to support the process isn't the biggest hurdle; it's changing user behavior, he says. It also helps to be clear about the primary reasons for cleaning up message traffic.

## Save Space, Save Money

Many companies are cleaning up their messaging stores to meet cost-cutting demands. At Hewitt, software automatically analyzes the same data that took an employee hours to process manually, says Scott Pitts, manager of the knowledge management group at Hewitt. Pitts says he will use the analysis from DYS to prepare his budget for next year.

The company chose Control e-mail, replication and application software from DYS to help it better manage its existing equipment. Now the CIO, messaging manager and security manager at Hewitt can view the reports using the Control product.

Also, Pitts can set in-box limits based on traffic norms, and Control can check for improper use. For example, Pitts found that one of the top 10 domains to which Hewitt employees sent e-mails was that of a competitor. After investigating, he learned that the competitor is also one of the firm's largest partners, so the traffic is likely legitimate, Pitts says. But now he has an idea of what's leaving the company.

Statistics on replication or the synchronization of documents and databases between the server and the client application are displayed on a company portal designed by DYS, within 24 hours of any replication. Control's e-mail suite can track the number of e-mails that go to a given domain or identify a user who chronically sends large messages. It doesn't scan for content. The IT staff can then adjust their systems accordingly.

If a server in Japan is replicating a database every night but traffic analysis shows that no one has accessed it for the past five months, an administrator can erase the database from that server and save space. Or, if an end user is doing a lot of e-mail replicating late at night, an administrator might ask why.

Pitts says he's already saving time and money by moving collaborative applications off servers where they're never used. "The old saying was 'Disk is cheap,'" he says. "Well, it's really not that cheap."

KeyBank NA monitors replication traffic on Notes and Domino systems with IntelliWatch software from Candle Corp. in El Segundo, Calif., says Robert

## Knowing What You've Got

One of the main problems with messaging is the unwieldy mass of communications that users must manage and try to sort through to find information, according to David Ferris, president of Ferris Research Inc. in San Francisco.

"These are becoming very rich repositories, which need good management tools and disciplines," he says. "[For example], powerful, easy-to-use search technology, and archiving technology, is needed."

At KeyBank, there is some limited use of Lotus knowledge management tools, according to Executive Vice President and CTO Robert Ricker. But those tools aren't quite what he's looking for. "We're still experimenting," he says.

Sharing information between organizations is even more difficult. Documents and applications must be recognized across different directories to be searchable.

"It is very hard to use Exchange between organizations. Public-folder synchronization between organizations relies on a tool from the Exchange 5.5 BackOffice Resource kit, which is complex to configure and only

supports replication between organizations using the same language version of Exchange," says Greg Decker, an analyst at Ferris.

"Directory synchronization is near impossible for an Exchange administrator without outside help; the Inter-Org Synchronization utility in Exchange 5.5 doesn't work with Exchange 2000, leaving the only option being to engage Microsoft Consulting Services to implement and configure Microsoft Metadirectory Services," says Decker.

"Using Exchange between organizations is nowhere near as easy as in Notes, which is no cup of tea."

Some companies are trying to deal with the problem by Web-enabling their documents.

Venture Law Group's 300 users now access their Outlook e-mail through a Web interface.

"We do not install a file server on most of the people's PCs," says Jackson Ratcliffe, vice president of technology at Venture. "All the users in the firm access the file server through Internet Explorer, via the browser."

- Jennifer DiSabatino

## CHALLENGES

Ricker, executive vice president and chief technology officer at the Cleveland-based subsidiary of KeyCorp. IntelliWatch provides automated problem detection and can send alerts via pager and e-mail to administrators when there are replication errors.

David Price, who until last month was senior groupware architect at ABN Amro Bank NV, a global bank based in Amsterdam, says his company has been running DYS tools since 1997. He has also used the software to track e-mail usage trends, including the explosion of attachments.

"We've seen 100% growth in [the use of attachments] in the last couple years," he says. "It allowed us to present the same metrics that our firewall people had done for some time." With those metrics, Price says, the company can make usage rules.

For Price, having reports that showed the growth in the use of e-mail attachments justified the purchase of TurboGold compression software from Stampede Technologies Inc. in Dayton, Ohio.

ABN Amro's IT staff can now prove that it's meeting the terms of internal service-level agreements instead of arguing with users over downtime. The software tracks replication to ensure that databases, or even individual e-mails, are successfully replicated. "Of course, in any organization, you get people who say, 'I never get my mail in less than 10 hours,'" Price says. But now IT has real numbers as proof.

## Legal Pressure

For some, managing messages is driven by legal requirements. "As with all law firms, records management is a critical issue," says Jackson Ratcliffe, vice president of technology at the Menlo Park, Calif., office of Venture Law Group, a law firm that represents technology start-ups. His firm is required by law to save all correspondence about and from its clients.

"E-mail has taken over our correspondence," Rat-

cliffe says. The firm, which is an Exchange shop, ran a simple public-folders system in Windows, where employees could store information for every client, but e-mails still weren't well organized or safely stored, Ratcliffe says.

"All of a sudden, we discovered our Exchange server got up over 20GB," he recalls. "To restore a 20GB database is scary. You don't want to do it. I could configure to avoid this, but I'm a smaller shop, and I don't have the resources to [manage] a public-folders Exchange server."

So Venture Law went from relying upon Exchange to making SQL Server the foundation of its document management architecture. The firm also used FileSurf software from MDY Advanced Technologies Inc. in Fair Lawn, N.J., to take messages from public folders in the Exchange server every night and automatically move them to a file server across a virtual private network that connects its offices in Menlo Park, San Francisco, Kirkland, Wash., and Reston, Va.

"Both Domino and Exchange have a big blob [binary] database, and the bad thing is you can't access any single message until you restore all messages," so Venture Law was in danger of losing its documents, Ratcliffe says. "You have to assume everything is going to go down." Users are still responsible for moving e-mails to a FileSurf folder, which appears as part of the Outlook e-mail client in the user interface. However, the nightly backup, from which Ratcliffe can extract individual messages or the entire store, makes that data more secure.

Venture Law now stores a half-million messages in a file server, and its message store has grown to more than 35GB. But Ratcliffe breathes a lot easier these days. "I don't have to worry about crashes," he says. ▶



To find more information about tools designed to help organizations manage their messaging stores, please visit Computerworld's Web site:  
[www.computerworld.com/q28982](http://www.computerworld.com/q28982)

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# The Windows Registry

## DEFINITION

**The Windows registry** is a database that stores configuration information for the operating system and the applications that run on it. The registry contains a wide range of information, such as profiles for users, the programs installed on the computer, property settings for folder and program icons, and system hardware and ports.

BY CAROL SLIWA

MENTION "the registry" to PC users, and they'll probably think of standing in line for license plates, not the set of configuration files built into Microsoft Corp.'s operating systems.

And Microsoft thinks that's the way it should be. The Windows registry stores important information about a computer's configuration. Users who modify the registry improperly could cause the operating system to become unstable or even unusable, according to Mike Coleman, a Microsoft product manager.

Trained IT administrators, on the other hand, may benefit from editing the registry to manage and configure a user's desktop. For example, they can lock down the operating system by hiding certain menu items or adjust security settings to ensure that users adhere to company policies.

## In the Beginning

Microsoft introduced the Windows registry in 1995. Prior to Windows 95, the operating system used text files to track configuration informa-

tion, but those files didn't have a common structure, and they were limited in the types of information they could store.

If a user deleted one of the initialization files, there was no easy way to deal with the problem, says Coleman. "We wanted to have a system that was less prone to error," he says.

The registry can back up and restore configuration settings both automatically and manually, and Microsoft has worked to make the registry more stable, self-maintaining and self-repairing, Coleman says. To gain greater flexibility in the types of data that can be stored, Microsoft switched from text configuration files to a binary architecture, he notes.

Users can make some changes to the Windows registry indirectly, via the control panel. An advanced user may opt for TweakUI, a tool introduced as a free download with Windows 98, to adjust the user interface settings, says Coleman.

A user also can make changes to the registry indirectly via software applications. For instance, Microsoft Office maintains a list of recently used documents, and a

user who doesn't want to keep that list can change the configuration parameter within the application to turn off the feature, Coleman says.

As critical as it is, the Windows registry can also be edited directly by a user or by software applications and installation programs. To edit the registry directly, a user can utilize the Regedit or Regedt32 tools that come with Windows.

## Different Strokes

When viewed through an editing tool, the registry on a Windows 9x operating system looks identical to the registry of Windows NT-, 2000- and XP-based systems. But Coleman says they're represented differently on disk.

The Windows 9x registry comprises two files: system.dat and user.dat. Windows Me adds a classes.dat file. Both system.dat and user.dat are stored in the \windows\ directory, unless the system is set up for individual user profiles; then the user.dat file is stored in \windows\profiles\username, Coleman says.

The registry for the Windows NT, 2000 and XP family is stored in multiple files in several subdirectories, and the user.dat file has a physically different structure than the user.dat file in Windows 9x.

Coleman notes that IT administrators can apply permissions to registry entries in Windows NT, 2000 and XP systems to prevent users from accidentally or unwittingly overwriting key registry data.

Windows 98 and Me have registry-scanning tools that can find and fix problems. A scan can be run manually to check the system, find problems and compact and clean the database, Coleman says.

The registry is automatically backed up each day. Coleman advises users to "treat backing up the registry just

## REGISTRY LINGO

The Windows registry is organized in a hierarchical fashion and comprises keys and subkeys, hives and value entries. Below are the definitions of some relevant terms:

**Registry:** The registry takes the logical shape of a tree.

**Subtree:** A subtree is a logical grouping of related information in the registry. HKEY\_CURRENT\_USER, for instance, is a subkey that represents the configuration information for the computer's current user.

**Hives:** On a user's hard disk, subtrees are stored in files called hives, which are named for their resemblance to the cellular structure of a beehive. A hive is backed by a single file and a .log file. By default, most hive files (such as Default, Security and System) are stored in the systemroot\System32\Config folder. Because a hive is a file, it can be moved from one system to another. A registry editor must

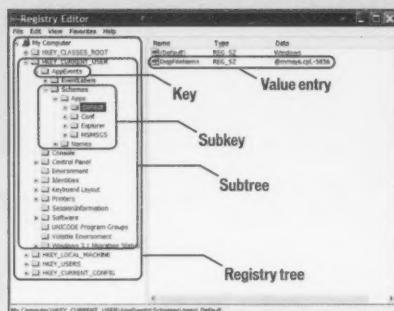
be used to edit the hive.

**Key:** A key is essentially a folder, akin to other folders on a hard drive. In the diagram below, keys include AppEvents, Console and Control Panel. Keys can differ depending on the operating system.

**Subkeys:** A key can hold other keys, called subkeys, in the same way a folder on a user's hard drive can hold subfolders.

**Value entry:** A value entry, which can be held by a key, is the configuration data that the registry stores for the operating system. The value entry has three parts: the name, data type and the actual data being stored.

**Registry size limit (RSL):** This is the maximum amount of space that can be allotted to the registry, to prevent an application from filling the paged pool with registry data. The total amount of space that can be consumed by hives is restricted by the RSL.



like you treat backing up your data.... Anytime you're going to adjust or tweak the registry, backups should be made on removable media."



For additional resources and to learn how other operating systems store configuration data, visit: [www.computerworld.com/q?29107](http://www.computerworld.com/q?29107)

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# Proxy Server Serves to Block Porn-Surfing Slackers

**Mathias finds that denying access to inappropriate Web sites is preferable to exposing the perpetrators**

BY MATTHIAS THURMAN

**I**T'S FUNNY HOW DURING the course of dealing with one incident, one often discovers other issues that also need to be addressed.

A few weeks ago, my company was dealing with a Nimda virus infestation. During the course of looking for the suspect traffic, we noticed other Web traffic leaving the corporate network. After filtering the traffic with the Snort intrusion-detection tool and the TCPDump network sniffer utility, we discovered that a significant amount of HTTP traffic was destined for sites that are, let's say, not business-related. Some employees appeared to be spending three to four hours a day surfing the Web sites.

It's one thing if employees occasionally surf to news sites such as CNN.com. But when a significant amount of network bandwidth is wasted by employees surfing to porn sites, I'm bothered. First, it's not a productive use of company time. Second, if an employee sees a co-worker surfing to such questionable Web sites, that employee can sue the company for sexual harassment. Finally, law enforcement agencies have set up sting operations in which they run and monitor illegal pornography sites.

If an employee surfs to one of these sites and gets nabbed by a law enforcement agency, the incident could eventually generate negative press against our company. In addition, we would have to answer to subpoenas and search warrants. I've been through that mess before, and frankly, it's a waste of my time to be put into interrupt mode and require me to chase logs, image hard drives and answer to a bunch of guys in suits and ties who end up mak-

ing me feel like the guilty party.

I created an acceptable-use policy for our company a few months ago, but the human resources department hasn't put the wheels in motion yet to ensure that all employees have acknowledged it. To address the acknowledgment issue, I plan to work with the human resources and legal departments to finalize the policy and come up with a communications plan to ensure that our employees are aware of our Internet usage guidelines.

This isn't as easy as it sounds. We have employees all over the world, and policy has to be written differently for certain countries. Also, getting thousands of employees to acknowledge that they have read and understood the policy can be difficult.

#### Surveillance Issues

I also wanted to install monitoring software to enforce the policy, but the CIO refused to allow it. The reasons were unstated, but I know them well. These surveillance tools can monitor and graph employee network activity, including Web activity. They report how much time each employee spends at nonbusiness-related sites, and the Web addresses of those sites.

In my previous position, I implemented a SuperScout Web Filter (formerly called Little Brother) by Scotts Valley, Calif.-based SurfControl and was absolutely amazed at the amount of non-business-related activity that took place during the day.

At any given time, about 20% of employee PCs were surfing either non-business-related sites, such as ESPN.com, or pornographic Web sites. This included both staff and executives, including the CIO, chief technology officer and even the CEO. In one case, we drilled down into the details and found

that one of the company's directors was spending an average of two hours per day in chat rooms, as well as more than three hours per day surfing a wide range of Web sites unrelated to his job.

My boss at that time, a vice president, decided that it would be in our best interest to take down the monitoring system and make a general statement regarding the acceptable-use policy. So when the CIO at my current company decided that it would be best to address the unauthorized use of company resources via filtering, I fully understood his reasoning.

#### Setting Up the Roadblocks

I love addressing company policy with technology.

For example, we have a policy that dictates how to construct user passwords, how many times users can reuse them, and so forth. But companies can also use programs such as San Ramon, Calif.-based MDD Inc.'s Password Bouncer or a tool in a Windows service pack called PassIt that enforces password policy by not allowing employees to create insecure passwords. In the same way, we decided to address our Web surfing issues by installing a proxy server to analyze Internet traffic and drop any traffic destined for undesirable Web sites. As an added benefit, we can also configure the proxy to Web sites that employees routinely visit, which will help improve performance.

One of my initial concerns was creating the list of sites to block. Fortunately, I discovered that most proxy servers include lists you can use to enforce your security or acceptable-use policy. I'll still have to do some tweaking to add new sites to block, but the initial leg-work is already done.

Configuration is another concern. The biggest issue is how to get our company's Web traffic to pass through the proxy server.

If this were a small company, I could configure the proxy server on a demilitarized zone and configure each client's Web browser to point to the proxy. Unfortunately, I can't easily change the configuration of thousands of desktops and laptops worldwide. What we'll probably use is something like Check



## SECURITY MANAGER'S JOURNAL

### PROXYTOOLS

Here's how to find out more about the proxy servers my company is considering, along with other useful resources I found in my search.

**[www.websense.com](http://www.websense.com):** Websense offers a 30-day trial version of Websense Enterprise at its Web site.

**[www.microsoft.com/isaserver](http://www.microsoft.com/isaserver):** Microsoft's Internet Security and Acceleration Server Web page includes a demo and downloadable trial software.

**[www.sun.com/software](http://www.sun.com/software):** Sun offers both a product specification page for its iPlanet Web Proxy Server and an evaluation guide white paper at this Web site.

**[www.squid-cache.org](http://www.squid-cache.org):** As an open-source alternative, Squid is one of the best free Web proxy server software programs available.

**[http://serverwatch.internet.com/proxy\\_servers.html](http://serverwatch.internet.com/proxy_servers.html):** This Web site provides links to reviews and product information for about 30 proxy servers.

Point Software Technologies Ltd.'s Content Vectoring Protocol, which can redirect all Web traffic seen at the firewall to a proxy server. All of our internal workstations are configured to send traffic to the firewall by default. It's a lot easier to change a setting in the firewall to redirect all outbound Port 80 (Web) traffic to a proxy server than to change thousands of workstations.

As to which proxy server we'll choose, the jury is still out.

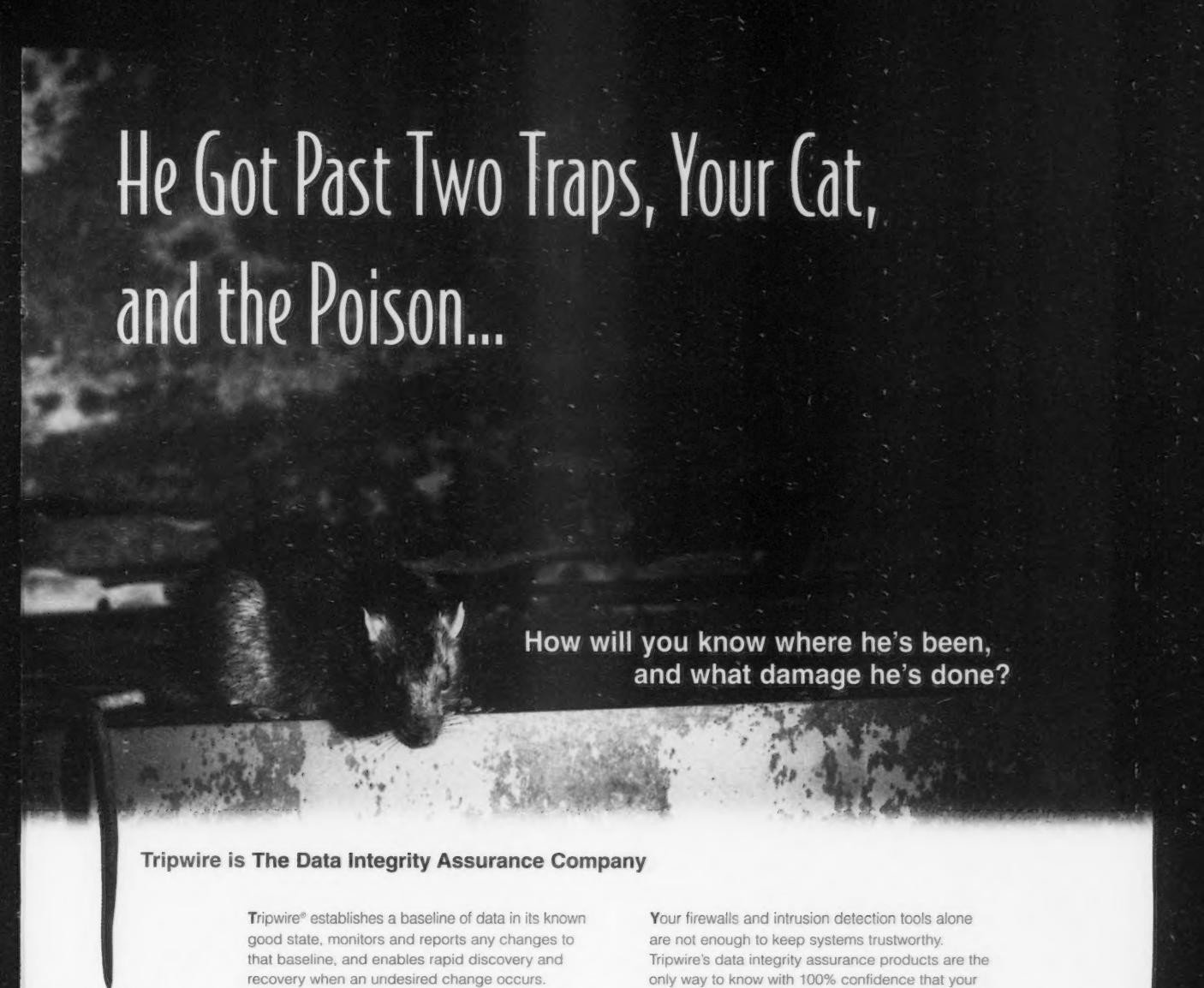
Our short list includes Microsoft Corp.'s Internet Security and Acceleration Server, Sun Microsystems Inc.'s iPlanet Web Proxy Server and San Diego-based Websense Inc.'s Websense Enterprise. Next, we'll get a few evaluation products in-house and set them up on a segregated network in our laboratory. We'll simulate our current environment and test each product for manageability, ease of use and, most important, performance.

After testing is complete, I'll be sure to let you know which product we chose, and why. ▀

### Quick Link

Discuss this week's column and catch up on the latest security developments online at:  
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## IT Careers in Consulting

**The consulting landscape has changed much in the past six months with projections for hiring lower than in prior years and hiring occurring more and more with second and third-tier firms vs. the traditional Big Five. RHI Consulting's quarterly CIO Hiring Index indicates a 10% increase in IT hiring for the second quarter, focused primarily on New England and West South Central States. Consulting projects will involve those affecting the bottom line – operational efficiency and increased productivity – as well as IT security.**

David Reingold, senior vice president at **Computer Horizons**, based in Mountain Lake, NJ, said the hottest area for his firm is Chimes, a business unit that provides human capital management expertise, particularly in the area of e-procurement and human resources. To staff the firm's consulting work, Reingold looks for people who have a broad education. "Someone who has a narrow education and knows only technology probably won't be as successful as someone with a well-rounded background," he says.

In addition to hiring individuals to run client projects, **Computer Horizons** also will look for people with experience in managing consulting operations. "We see some expansion for us operationally (branch offices) this year, requiring these skills," Reingold says.

In addition to Chimes, **Computer Horizons** provides clients with staffing and professional services, and has a solutions division that builds, tests and delivers systems to clients. Approximately 65% of the company's revenues come from Fortune 100 clients.

"We believe every IT professional should spend some time in consulting, to see the diversity of multiple industries and applications and approaches," Reingold adds. "As a consultant, you are apt to be responsible for a deliverable very early in your career, which is important when you look for your first management job."

At **RHI Consulting**, the demand is hot for consultants in the areas of network security and infrastructure security, in general. Katherine Spencer Lee, executive director of **RHI Consulting**, says, "There is also increasing demand for data maximization. We went through a period in IT during which we were data gatherers. Now, businesses want to benefit from that information to build repeat business."

Lee says that in selecting candidates for **RHI Consulting**, she looks for a resume that goes beyond a laundry list of technical skills. "We want to know specifically what you contributed to a project. A couple of years ago, the focus was on the technologies you could use. While, of course, it's still crucial, today we want to know what you can do with that technology."

Lee maintains that the career path for IT professionals in consulting is still strong. "If you have a solid base of current skills and know the importance of softer skills – how to communicate with all levels of an organization and manage a project – you can have a phenomenal career. IT people who know strategy are sitting at the boardroom table, focused on turning company desires into reality." **RHI Consulting** connects consultants with projects, but the company also has a "bench practice" of full-time consultants.

For more job opportunities with consulting firms, turn to the pages of **ITcareers**.

- If you'd like to take part in an upcoming **ITcareers** feature, contact Janis Crowley, 650.312.0607 or [janis\\_crowley@itcareers.net](mailto:janis_crowley@itcareers.net).
- Produced by Carole R. Hadden
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## Gates

remedies sought by the nine nonsettling states will cause loss of revenue and employees and send his company's multi-billion-dollar research and development engine "into a 10-year period of hibernation."

Gates delivered his message during three days of testimony. In the process, he demonstrated that he's thoroughly knowledgeable about the technical and legal issues facing his firm.

The job of U.S. District Court Judge Colleen Kollar-Kotelly, who is also acting as jury, is to decide whether Gates was bluffing. Some users are convinced he was. "It's hyperbole," Larry Young, IS manager at International Environment Corp., an air-conditioner parts maker in Oklahoma City, said of Gates' threat.

Still, Gates "did an admirable job presenting his case, as bad as it was," said Young.

The threat to pull Windows "was a little bit on the outrageous side," said Kevin Shauvin, IS director at Huntwood Industries Inc., a Spokane, Wash.-based cabinet maker. But he credited Microsoft with bringing some standardization to IT. The court has to ensure that this standardization "is not disturbed," Shauvin said.

Frank Orlow, technical services manager at Clark Retail Enterprises Inc., an Oak Brook, Ill.-based operator of more than 1,330 convenience stores, doesn't believe Microsoft would pull Windows from the market. But Gates' testimony helped the company's credibility, he said. "I felt uncomfortable when he stepped away from the CEO position ... and let other people be up front speaking for Microsoft," Orlow said. "Like he was trying to hide something."

Gates wasn't hiding from the questions posed by the states' attorney, Steven Kuney, who was clearly out to rattle his

witness. Questioning Gates about his assertion that the remedies would lead to cloning of Windows, Kuney asked icily, "Does that somehow not happen when Microsoft is cloning other people's software?" When faced with hostile questions, Gates calmly stuck to his arguments.

Before he took the stand, Gates presented a 163-page testimony that included a detailed analysis of state remedies that would force Microsoft to produce a stripped-down version of Windows, allow other companies to port Office to Linux and other operating systems, make Internet Explorer open source and offer developers access to Windows source code.

In that testimony, Gates made "legitimate points" in support of his contention that the remedy sought by the District of Columbia and the nine states that have refused to sign the Bush administration settlement wasn't thought through



**GATES ASSERTED** that proposed remedies would shelf Windows, but some said he's bluffing.

as well as it should have been, said Rich Gray, an antitrust attorney in Menlo Park, Calif.

But Gates' assertion that the remedies would force Windows off the market is a "noncredible" claim that jeopardizes his entire testimony, said Steven Newborn, an antitrust expert at the Washington office of law firm Clifford Chance Rogers & Wells LLP. "Judges

are savvy," he said. "They hear these threats all the time."

The potential is there that the judge will view Gates' testimony as a bluff, agreed Dana Hayter, a former U.S. Department of Justice antitrust attorney at Howard, Rice, Nemerovski, Canady, Falk & Rabkin in San Francisco. But Gates' witness-stand performance may help him.

"Demeanor is important when evaluating testimony," said Hayter. "It may be true that from Gates' perspective, it would be the end of the world as he knows it, but that's his subjective perspective."

But one thing is certain, said Tim Guyer, an IT director at Werner Co. in Greenville, Pa. "Windows is so ingrained in the world right now" that Gates wouldn't be able to withdraw it from the market even if he wanted to, he said. ▀

**Reporter Carol Sliwa contributed to this story.**

Continued from page 1

## Fiorina

shareholders in order to secure their votes in the March 19 proxy election. Walter Hewlett, formerly a member of HP's



**HP CEO FIORINA** testified that documents entered into evidence were for planning purposes only.

board of directors, filed the suit claiming that there was a coverup and alleging that HP's management had bought votes from Frankfurt-based Deutsche Bank AG by promising future business.

"There was material evidence that was not disclosed to the shareholders of this company," Stephen Neal, Hewlett's attorney, said in his opening statement. "[Shareholders] did not have the complete picture. For that reason, the proxy vote should be overturned."

Some users were sympathetic to that view. "I can understand the strong argument Walter is pitching from a perspective of corporate disclosure and responsibility to stockholders," said Joseph Polizzi, president of Encompass, a Compaq Computer Corp. user group in Chicago.

But when HP Chairwoman and CEO Carly Fiorina took the stand, she rejected the importance of documents that Neal

entered as evidence. She called them planning reports and said it would be irresponsible to release that data to shareholders. Her testimony was backed up by HP Chief Financial Officer Robert Wayman.

The documents were reports drawn up by business units new to the details of the merger, Wayman said. Because of antitrust regulations, Fiorina testified, only a fraction of employees at the two companies had access to all the information regarding the combined company.

### Executive Support

HP executives got support from the final witness. HP Director Phil Condit, who is also chairman and CEO of The Boeing Co. in Chicago, bolstered HP's claims that documents questioned by Walter Hewlett were planning estimates and weren't needed by the board or shareholders in making a decision on the merger.

## Score Card

**Microsoft** has been found in violation of antitrust law for illegally maintaining its operating system monopoly. The judge has two choices: adopt a DOJ-backed settlement or the tougher remedies sought by nine nonsettling states. Last week, Chairman Bill Gates took the stand:

**PERFORMANCE:** He was assertive, engaged, prepared and unbowed.

**CONTENT:** Gates may have raised good points about the remedies, but his dire predictions about the potential destruction of his company and Windows could hurt his credibility.

**VERDICT:** The judge offered no clues. She didn't question Gates and gave no hint of how she really feels.

## Quick Link

What do you think about Gates' testimony? Join the discussion at:

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Neal also argued that Fiorina and Wayman had cut a deal to get Deutsche Bank to switch 17 million of its 24 million votes in favor of the merger.

Fiorina and Wayman denied that they had cut a last-minute deal with Deutsche Bank.

The long proxy fight and the current court battle may have strained user relations as much as ruffled stockholder attitudes. Polizzi said, "I also have to wonder if [Hewlett] also looks at this from the perspective of both existing and potential customers... and how this protracted and, at times, rancorous discussion affects our opinions and our planning on who our IT provider of tomorrow will be."

**Reporter Jaikumar Vijayan contributed to this story.**

## Quick Link

Visit our Web site for ongoing coverage of HP's legal battles and merger moves:

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# That's Incredible!

**B**ILL GATES' FATHER IS A LAWYER. Gates himself was a prelaw student before he dropped out of Harvard to start Microsoft, where he's worked closely with some very good, very smart lawyers over the past three decades. You'd think in all that time, surrounded from boyhood by people who understand how courts work, that some of that legal savvy would have rubbed off.

Apparently not. Gates still thinks a courtroom is a debating club that's all about clever rhetoric and definitional nitpicking.

But it's not. Ultimately, it's about credibility.

U.S. District Court Judge Colleen Kollar-Kotelly wants to trust Gates. It would make her job a lot easier if she could believe that Microsoft will act responsibly in the future. Users also want to believe that Microsoft will be responsible. Even Microsoft's competitors would like that — if only they could believe it.

But Microsoft has credibility problems. And last week, Bill Gates made it pretty hard for people to trust what he said.

There was Gates on the witness stand, testifying in the penalty phase of Microsoft's antitrust trial. By all accounts, he was far more polished than during his videotaped trial deposition, which Justice Department prosecutors used so effectively to convict Microsoft of breaking antitrust laws. Last week, Gates was occasionally nervous but often supremely confident. By Tuesday, he was even making the judge laugh.

But was he making the judge actually trust him? Probably not.

It didn't help Gates' credibility that he painted doomsday endgames for each of the remedies proposed by the nine states that didn't sign on to the Justice Department's settlement agreement with Microsoft. According to Gates, the remedies would prevent Microsoft from fixing security holes, allow competitors to effortlessly clone Windows, require every idea for an API that came into a Microsoft developer's head to be reported immediately to competitors, and force the company to fire most of its employees.

Eventually, even Gates had to admit that the off-the-wall, out-of-left-field, hey-it-could-happen scenarios were unlikely.

And it certainly didn't help his

credibility when, after insisting that making a modular version of Windows was technically impossible and that he'd have to kill Windows if the court gave such an order, Gates admitted under cross-examination that Microsoft already has such a product: Windows XP Embedded.

Or when he admitted personally threatening Apple's CEO with canceling the Macintosh version of Microsoft Office after the company chose another Web browser instead of Microsoft's Internet Explorer — the kind of retaliation that, he acknowledged under questioning, one of the states' proposals would prohibit.

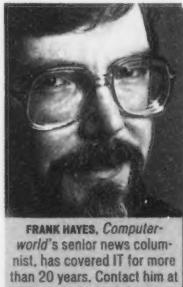
In fact, faced again and again with opportunities to convince the federal judge who holds the fate of his company in her hands that he is realistic, responsible and credible, what did Gates do? He spent three days treating the whole process as a game — "word fencing," he called it — arguing over definitions, posing implausible situations, stretching the truth.

Unfortunately for the rest of us, it's not a game. Kollar-Kotelly now has to decide whether Gates and the company he leads can be believed when they say that their outlaw days are over and that the Justice Department's consent agreement is sufficient to guarantee their good behavior.

If the judge can't believe that, she'll have to impose tougher restrictions. It's as simple — and difficult — as that.

It's all about credibility. And the last time Gates appeared in court, his incredible videotaped testimony helped convict Microsoft of breaking the law.

This time he may just have convinced the judge that Microsoft can't be trusted not to do it again. ▶



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## SHARK TANK

"THE CHANGE you made to the system over the weekend is making my program bomb off," programmer complains to sys-admin pilot fish. But Friday's system log shows the program got the same error before the system changes, fish points out. Programmer considers, then grumbles, "Maybe so, but today it's a lot worse."

SUPPORT pilot fish at fleet management software vendor gets a call from a user: Her word processor can't read the text file created by the fleet management application. Just reassociate the file, says fish. "I don't know how," user says. Your network admin can show you, fish suggests. Sighs user, "I am the network admin."

USER CALLS sysadmin pilot fish with a configuration request after he has accidentally deleted whole sections of a document: "I want you to fix it so that I can't delete things."

IF THE E-MAIL says "I Love You," it's a virus, IT pilot fish warns users. Later that day, one user fesses up to reinforcing the network. "I thought I had virus-

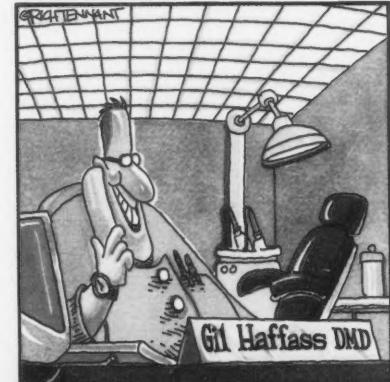
protection software on my machine," user says, "and I wanted to see what happened when it stopped the virus."

HOSPITAL IT pilot fish's new PDA application lets nurses select the time for an event or type one in. But nurse admin objects: "That's unrealistic and difficult to use." Any ideas? fish asks. Says nurse admin, "Could you make a big picture of a clock? Then we can pick the time by moving the clock's hands."

C-LEVEL exec asks IT pilot fish for a laptop and projector to do a presentation — "and a fat cable to move the documents from my PC to the laptop." What do you mean, a fat cable? fish asks. "A fat cable," C-guy says. "As in, something to move a large document through from one side to the other. Do I have to be more specific than that?"

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